Safety & Service Information

Typebar Typewriter

Model A1-A4 [11], Model B1-B4 [12], Model B I/O [14], Model C1-C4 [13], Model D1-D4 [15]

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F/N 241-5501-4

AUGUST, 1976

This publication replaces the Combined Typebar Newsletter, F/N 241-5501-3, dated January, 1974, which may be discarded. This revision contains all current Safety and Service Information items. Engineering Change CEM's from pages 1 through 26 have been included in the latest revision of the Parts Catalog and A/PM. The combination of this Safety and Service Information book and CEM's beginnning on page 27 will make a current set of Typebar CEM material.

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MODEL A-B CARRIAGE & RAIL (Mech. 02)

Reinserting Paper Correctly On Writing Line: To prevent paper from rising above the writing line when the feed rolls are engaged after reinserting paper, two springs may be installed from the front feed roll shaft to the rear feed roll shaft. These springs should be positioned between the last two feed rolls on each end. Convenient springs to use are the Model A, B and C cam lever spring, or the Model 01 typebar spring. The springs will cause the deflector to tip back slightly, preventing the paper from buckling in the area of the front feed rolls. Caution — The spring tension must be reduced to prevent the front lips of the deflector from touching the paper. If this is not done, marking of the copies may result.

Single Piece Deflector 20" (Model C) Works On Model B: Although there was no single piece deflector designed specifically for the Model B 20" carriage, a few customer engineers have tried the Model C deflector and found that it will fit on the Model B if four clips, P/N 115344, are added on the shaft to prevent sidewise shifting. The advantage of the single piece deflector is in preventing marking on paper master such as multilith and multigraph, caused by the breaks in the split deflector.

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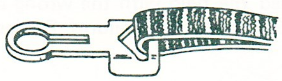
MODEL A-B CARRIAGE RETURN (Mech. 03)

Carriage Return Tape — Universal — Installation: When installing the Universal return tapes on Model A carriages, be sure to install the tape as shown. Erratic linespace may occur if the tape is installed upside down.



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MODEL A-B COVERS & MOUNTING (Mech. 04)

Covers — Specify Gray For Reconditioned Model Bs: Reconditioned Model Bs are being painted opal gray. When replacing covers on these machines, opal gray should be the color specified.

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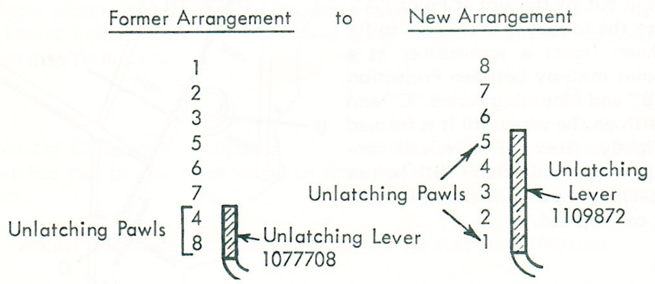
MODEL A-B ESCAPEMENT (Mech. 06)

Pawl Arrangement Changed: The Models A and B "Executive" Typewriter nonfloating escapement pawl block assembly has been changed to the same arrangement as Models C and D floating pawl block.



This change allows the use of grouping unlatching lever, P/N 1109872, in all assemblies.

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MODEL A-B SHIFT (Mech. 16)

Shift Toggle Plate Assemblies — Field Replacement: The entire shift toggle shaft assembly should be replaced if it is necessary to replace the right-hand or left-hand shift toggle plate assembly. The individual plate assemblies are drilled as a set for accuracy and are consequently not interchangeable.

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MODEL A-B TAB (Mech. 18)

Tab At Right Margin — Failure To Unlatch — Models A & B: On Model A and B ETs, the former pin-type final tab knockout may fail to unlatch the tab lever at the right-hand margin. This can be corrected by installing a Model C tab rack final stop directly over the old final knockout pin.

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MODEL A-B HEKTOWRITER (Mech. 31)

Carriage Bind — B Hektowriter: A hard to find bind in the Hektowriter auxiliary carriage may be caused by a flat having been worn on the center rollers when a binding condition occurs. Replacement may be necessary.

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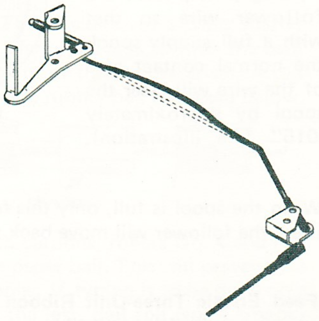
MODEL C & D BACKSPACE (Mech. 01)

Backspace Bellcrank Springs — Weak — Model D "Executive": Some Model D "Executive" typewriters may have weak backspace bellcrank springs (01-59) that could cause backspace failures due to the backspace pawls not fully restoring.

For added spring tension, the left end of the spring may be rehooked to the front side of the rail brace.

Backspace Failures If you are experiencing Model C & D "Executive" Typewriter backspace failures, move the aligning link to the inside hole of the aligning lever and the aligning lever spring to the outside hole as illustrated.

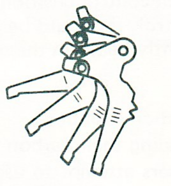


After moving the aligning link to the inside hole, recheck all adjustments of the "Executive" Typewriter backspace mechanism.

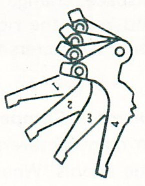
NOTE: The aligning link must be formed as illustrated to prevent interference with the C/R decelerator adjusting screw.

Backspacing On Robot Operating: For increased efficiency and speed when underscoring on a robot-operated typewriter, the underscore can be made into a dead or non-escaping typebar. This is done by removing the portion of the typebar where it contacts the U-bar. It is then possible to underscore and backspace simultaneously.

"Executive" Backspace Pawl — Identification: "Executive" backspace pawls can be identified as illustrated:



1/32 Pitch



1/36 Pitch

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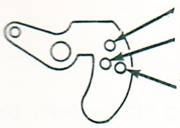
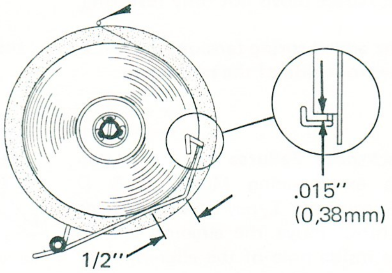
MODEL C & D CARBON RIBBON (Mech. 14)

Carbon Ribbon Service Tip In order to prevent the carbon ribbon from accidentally unwinding when making a repair, pull the ribbon follower forward to rest against the side of the ribbon spool hub. This will prevent the supply spool from rotating. Be sure to return the ribbon follower to its proper position after making the necessary repairs.

Feed Arm – Lower – Added Hole The lower carbon ribbon feed arm, now incorporates a third mounting hold for the ribbon feed link. This hole is to be used to eliminate overfeeding of the carbon ribbon on 12 and 14 pitch machines. The drawing illustrates the correct link hole to be used for "Executive" Typewriters, for Standard machines, and for 12 and 14 pitch Standard Typewriters.


Hole Added For 12 & 14 Pitch Machines
Standard Machines Other Than 12 & 14 Pitch
"Executive" Typewriters

Feed Erratic
If you find erratic ribbon feed occuring only when a new spool is installed, the following fix may be quite useful. Using the 3-prong pliers, form the follower wire so that with a full supply spool, the normal contact area of the wire will clear the spool by approximately .015" (see illustration).



When the spool is full, only this form angle will touch. As the ribbon is used, the follower will move back to a normal contact action.

Feed Erratic Three-Unit Ribbon – Service Tip When experiencing erratic three-unit ribbon feed, replace the lower feed arm springs with P/N 1154195. This ensures a positive return of the arm before the next feed operation.

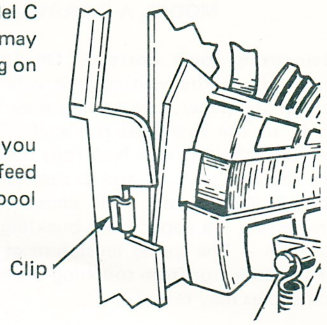
Feed Roller Binding Field reports indicate that the carbon ribbon feed roller binds on its shaft when the retaining nut is fully tightened. Remove the flat washer from behind the feed roller spider spring to overcome this condition.

Partial Character Printing – Carbon Ribbon Machines Customers using very large characters (particularly changeable typebars) often get only a part of the character printed. The old method of having the operator insert a piece of carbon paper in front of the special character may not produce the desired result, particularly with the colored film ribbon.

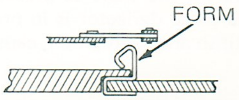
A method of correcting this conditon is to reposition the ribbon lift final stop to permit the operator to use the center position of the ribbon control for these characters. This requires the operator to strike the character, backspace, change the ribbon control position, strike the character again, and reset the ribbon control. It should be noted that this method will cause characters to be slightly heavy in the center.

Ribbon Feed Problems – Competitive Carbon Ribbons Some competitive ribbon manufacturers are winding their carbon ribbons on thick-flanged plastic spools. When customers attempt to use these ribbons on Model D and late-level Model C Typewriters, ribbon feed failures may occur due to the ribbon spool binding on the ribbon cover plate.

When encountering this problem, you may easily solve it by installing a feed roll clip on the right-hand supply spool mounting plate as shown.



Ribbon Feed Erratic-"Executive" Typewriter: A possible interference may exist on Model D "Executive" Typewriters in the area of the ribbon selector bracket. Because of a very close condition, the front LH bottom panel clip may interfere with proper ribbon feed. Check for this condition and form the clip for greater clearance.



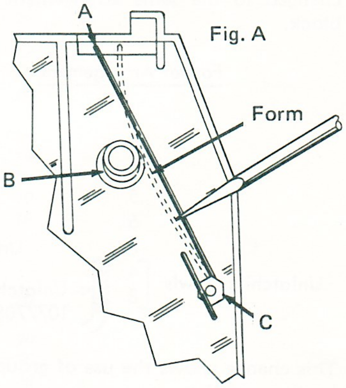
Ribbon Feed Failures – Drive Spring – Model D: Some Model D typewriters have reached the field with the wrong ribbon drive spring (14-175) which will cause ribbon feed failures. Replace with spring, P/N 1231660.

Ribbon – Feed Failures – Model D: Some typewriters have reached the field that have front feed rollers (14-245) with grooves cut too deep. This causes the stripper to bind off the feed roller.

SOLUTION: Replace front roller, P/N 1154276, or remove front stripper (14-254).

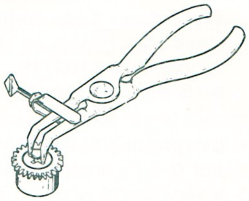
Ribbon Flaking Check height of static ground wire. It should be high enough so that it will not catch and be held back by the window in the RH plate. Raise the wire if it catches, as this will cause excessive carbon ribbon dust and flaking.

Static Ground Wire Slipping Out: If you have trouble with certain static ground wires slipping out of the slot at Point "A", use the following procedure to fix them: Insert a screwdriver at a point midway between Projection "B" and Mounting Screw "C" and push on the wire until it is formed slightly. Now the wire will contact the Projection "B" before reaching a point in the slot where it can slip out.

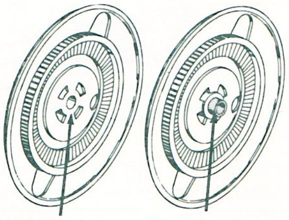


Sound Deading Material Can Cause Carbon Ribbon Take-Up Problems – Service Tip: If you have a call on carbon ribbon take-up, check to see if the sound deadening material on the LH side of the keyplate may possibly be contacting the inner or outer take-up flange. If it is, you will notice a track on the sound deadening material where the flange has been rubbing. Current product "D's" have the material stuck on the keyplate vertically instead of horizontally adjacent to the margin release button.

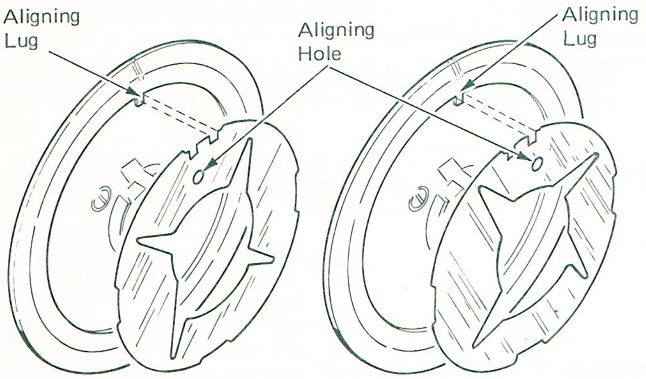
Take-Up Clutch Adjustment The take-up clutch can be easily adjusted by using the grip ring pliers. Insert the pliers as shown in the slot and turn the gear for adjustment.



Take-Up Inner Flange Compatibility The carbon ribbon inner flange was modified to ensure stability at about the time the Model "D" was announced. The old flange can be used on late level take-up assemblies, but the new flange due to the extrusion can be used ONLY on the late level.



Take-Up Insert — Installation: Take-up problems will be encountered if this insert is improperly installed. When replacing an outer flange on carbon ribbon typewriters, the insert must be installed differently for modified and spring drive take-ups. On the modified carbon ribbon machines, the aligning hole on the insert should be forward of the aligning lug on the flange. The insert must be turned over for spring drive machines so the aligning hole will line up with the aligning lug.



Modified Carbon Ribbon Take-Up

Spring Drive Carbon Ribbon Take-Up

Take-Up Flange Incompatible The new carbon ribbon flanges with tapered hubs should not be mixed with the old-style flanges with straight hubs. If it becomes necessary to replace one of the old-style flanges, both the inner and outer flange should be replaced with new-style parts.

Take-Up Clutches Pre-Adjusted Properly pre-adjusted take-up clutches can be made up ahead of time by using the following procedure:

1. Adjust a separate test clutch and mark it for easy identification.
2. Roll the gear of the test clutch around the gear of the clutch to be adjusted.

If both clutches have the same tension, both gears will turn. If the clutch to be adjusted turns, it has less tension than the "test" clutch. If the test clutch alone turns, the clutch to be adjusted has the most tension. The test clutch can also be used to check the clutch tension on a clutch that has already been installed.

Take-Up Clutch Adjustment When adjusting the carbon ribbon take-up clutch, it is possible to use the pusher end of the spring hook as an offset screwdriver. Hold the clutch with the spring hook and turn the gear for adjustment

Tracking Problems On modified carbon ribbon mechanisms, check the friction lever and RH mounting plate for excessive dirt. Use of non-cartridge carbon ribbons may cause poor ribbon tracking, excessive carbon dust and insufficient feed. Remove dirt with cleaning fluid and check on each inspection.

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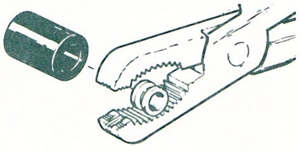
MODEL C & D CARRIAGE & RAILS (Mech. 02)

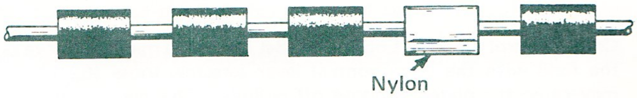
Bail Rolls — Loose Inserts: If problems are being experienced with inserts coming loose on nylon bail rollers, the rollers can be tightened by serrating the insert with a pair of gas pliers as shown.



For best results, rotate the insert and squeeze lightly several times. Avoid squeezing too hard as it might bend the insert.

Bail Rolls — Marking Paper: Current production Model D bail rolls are now manufactured with a urethane composition. This new bail roll is less susceptible to transfer of ink or toner. Replace in sets, part number remains the same.

Buckling Of Paper Masters The thickness of a paper master often causes it to buckle in the center. The typed area touches the card holders and smudging results. If a problem of this nature arises, it can be remedied by adding one nylon and one rubber bail as shown below.



For normal correspondence typing with carbons, rollers No. 4 and No. 5 can be placed at the right end of the paper bail. This will prevent the hard nylon roll from marking the carbons. If typing is to be done on a master, slide rolls No. 1 and No. 2 to the left. Bail roll No. 4 (nylon) can then be adjusted to track down the center of the master.

Card Holders — Adjusting — Service Tips For ease of adjusting card holders front-to-rear, use the following tools as illustrated:

1. To form the cardholders away from the platen, use the grip ring pliers on the center supports and the duck bill pliers on the outside supports (Fig. 1).

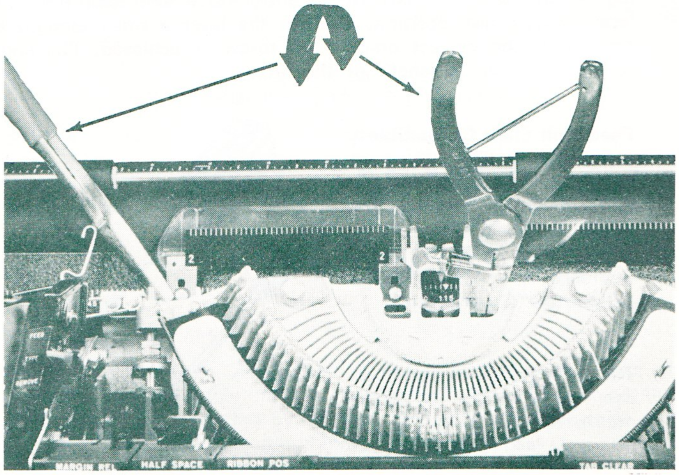


Figure 1

2. Use the large screwdriver to form the supports to bring the card holder closer to the platen. (Fig. 2)

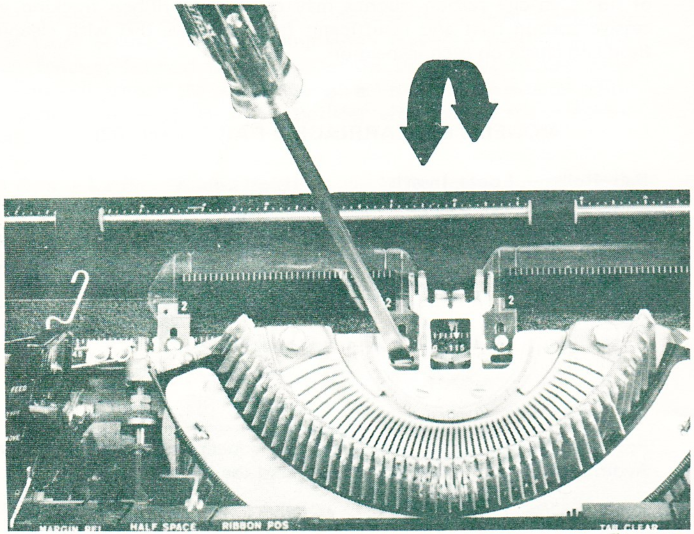


Figure 2

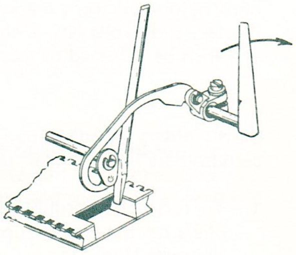
NOTE: When forming the outside supports, it helps to move the carriage out of the way.

Card Holders – Cleaning – Model C An effective method of cleaning Model C card holders is to place a few drops of No. 10 oil on them and rub dry with a cloth. The oil has a cleaning and polishing action, and will not damage the surface of the card holders.

Copy Control Lever – Loose – Model D: Some machines have reached the field with the copy control lever setscrew loose (02-141), which may cause the platen to move off cylinder. This can be detected when the copy control lever will not stay in the "A" position.

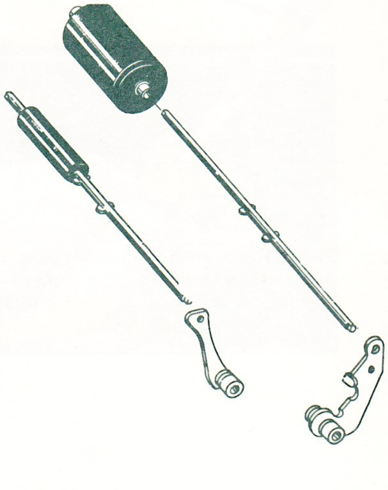
Feed Roll Release Increased Throw A quick and easy method to increase the throw of the feed roll release lever is as follows:

Raise the RH end cover, move copy control to rear, move paper release to the front (released position), insert a screwdriver behind the small link and into the opening in the carriage bed. Now gently force the feed roll release lever toward rest position. Operate the lever a small amount at a time until the correct amount of throw is achieved. The end result is a change in length of the link.



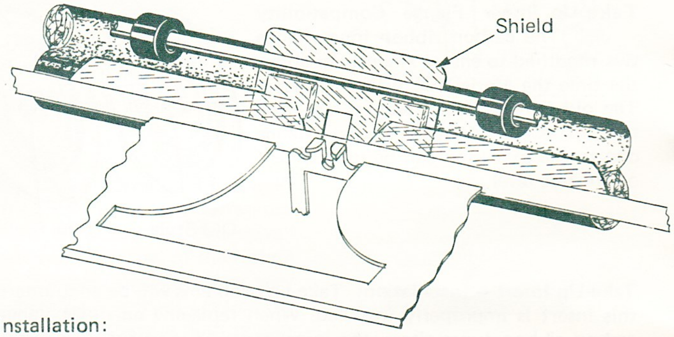
Feed Roll Shaft Compatibility – Model D: The new-style feed roll shaft is not compatible with the old-style feed roll levers on Model C's or Model D's below S/N 6198123 Standard and S/N 8328277 "Executive" Typewriters.

The new-style feed roll shaft can be installed on these machines by installing the new-style feed roll levers.



Front Paper Scale Spring Replacement – All Models: To replace front paper scale springs on Model A, B, & C ET's use the Model C single loop spring, P/N 1103719. This spring can be installed without removing parts from the typewriter.

Overprinting Shield This shield is intended for use on Model C and D ET's equipped with the increased height cardholders. This shield is very useful when an application requires typing near the upper edge of a card. For installation, refer to the illustration below.



Installation:

1. Insert overprint shield behind cardholders as shown.
2. Position bail shaft in front of shield.
3. Position bail rolls at extreme ends of bail shaft to eliminate interference with shield.

The shield can be installed and removed by the operator. The back of the shield should be cleaned often to eliminate smudges on the paper.

Paper Bail – Loose – Model D: If experiencing problems with paper bail arms (02-312, 313) camming over stops on paper bail pivot shaft, form the pivot shaft arms as shown below.

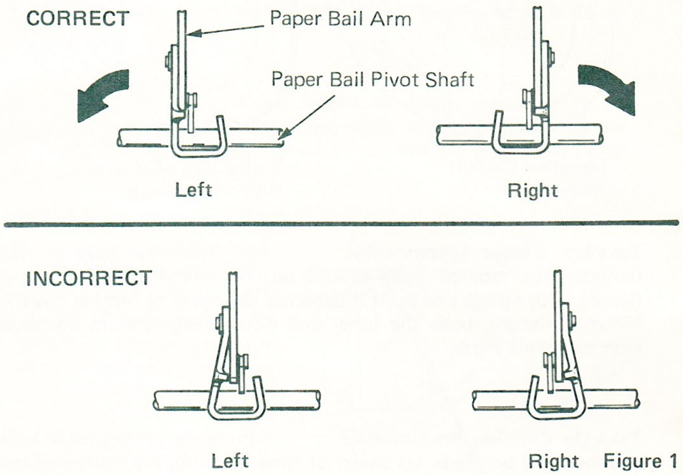


Figure 1

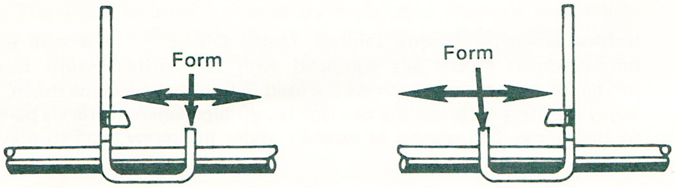
Note: If the arms still cam over pivot shaft stops, remove bail arm C-clips (02-12) and replace with grip clip, P/N 528552. This part is in parts packet No. 3.

Paper Deflectors Squeaking Can be eliminated by attaching a strip of plastic tape or similar material to the deflector at the point where it contacts the rear feed roll levers. Periodic replacement of the tape will prevent recurrence.

Paper Feed Problems – Front Paper Scale Some front scales have a rough painted surface on the back side of the scales. This may cause paper or envelopes to wrinkle or bend. Every effort is being made to ensure a smooth finish of these parts. When a rough surface is encountered, Durite® paper or steel wool can be used to smooth the surfaces.

In some cases, paper wrinkling may be corrected by forming the front paper scale spring to decrease the spring tension holding the front scale against the paper.

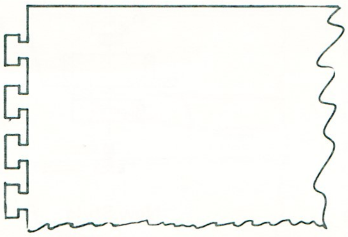
Paper Table Adjustment When the paper table is found slipping slightly from side to side, the tab on the paper bail pivot shaft can be formed to eliminate this sideplay.



Platen Guide Bellcrank — Loose Setscrew — Service Tip: A loose setscrew in the guide bellcrank will not properly position the platen when the multiple copy lever is returned to A. Improper ring and cylinder impression problems will result.

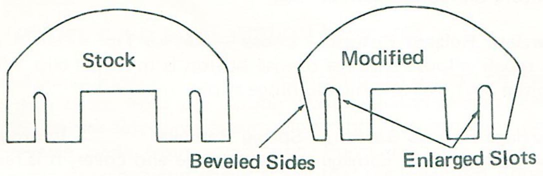
Platen Roll Back: Use a smaller diameter detent roller when experiencing roll back problems, especially on long carriage machines.

Rear Feed Roll Removal Model C rear feed rolls can be removed easily without tools. On the set of feed rolls being removed, push the LH rear lever down and to the left. Slide the feed roll shaft out of the left-hand lever, then lift it out of the right-hand lever. Use similar procedure to replace the feed rolls — insert the right-hand end into the hole, push the left-hand lever to the rear and insert the left end of the shaft into its hole. This technique will eliminate any forming of cradle assemblies and possible part damage. Make sure the pressure lever is restored to the operating groove of the feed roll release shaft.



Roll Back — Special Forms Many hospitals use a special paper with tabs at the left-hand edge for special binders. These tabs sometimes catch on the front paper scale during roll back and tear this form. To overcome this condition, install a feed finger, P/N 1099650, on the paper scale so it will cover the tabs and guide them into the feed rolls.

Underprinting Shields — Quick Installation Modify underprinting shields as illustrated for easy insertion and adjustment.



The beveled sides make insertion easier and the enlarged slot makes vertical adjustment easier after the shield is in place.

World Trade Model C Scales — Don't Use Cleaning Fluid Avoid the use of cleaning fluid on the scales of World Trade-manufactured Model C Typewriters. Cleaning fluid will remove the markings on the scales of these machines.

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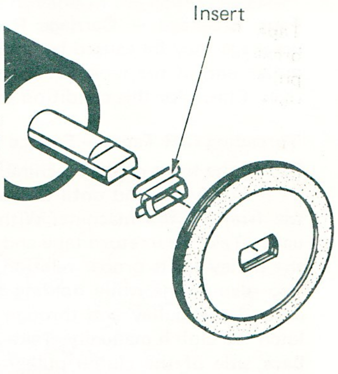
MODEL C & D CARRIAGE RETURN (Mech. 03)

Clutch Disc — Removal The following method is offered for easier removal of the C/R clutch disc on modified carbon ribbon equipped machines:

1. Remove keyplate.
2. Use T-bender to push and twist to release the clutch arm. Leave the T-bender on the clutch arm, ready for re-installation.
3. Remove the disc with the scissor clamps.
4. Reverse the above for re-installation.



Clutch Disc Sleeve Installation — Model D: The sleeved disc should be installed with the two flanges toward the power roll as shown in the illustration. This will ensure that the insert will not be dislodged or damaged the next time a power roll is installed.

Cork Clutch Disc: Some cork clutch discs (P/N 1078509) have reached the field with insufficient adhesive. Before installing, check by rubbing finger on outer edges of cork, making sure it is secure. Also, it is recommended the cork disc be used in Model A, B and C typewriters with the aluminum clutch assembly only.

Corner Pulley Removal: This part may be easily removed by following this procedure. Remove the extreme left-hand C-clip from the platen guide shaft; depress the rear feed roll cradle lever and move the entire cradle to the left. This will expose the screw for easy removal.

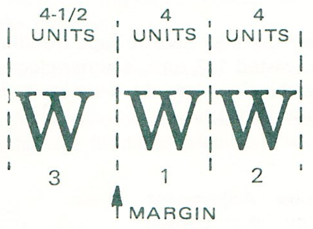
Indexing Failures — Model D With Torque Limiter: Extra indexing can occur on a long carriage return if the carriage return tension is excessive. This is most prevalent on machines with 66 tooth ratchets and is noticed as an extra half space of paper feed. If the tension is excessive, the torque limiter can cause the carriage return tape to slacken momentarily, permitting the index pawl to reset and feed an extra tooth.

Overbank Adjustment — "Executive" Typewriters — ABCD-4

With the carriage at zero margin, the No. 5 escapement pawl should be holding.

An easy method to check the overbank adjustment is:

1. Return the carriage to the LH margin.
2. Type two lower case w's.
3. Manually move the carriage into extreme overbank and type a third lower case w.
4. The lower case w in extreme overbank should clear the first w by one-half unit as compared to the first two w's you typed.



Quick Release Clutch Disengagement If disengagement of the quick release clutch arm from the clutch lever is experienced, the problem may be corrected by cleaning and relubricating the arm and the clutch plate sintered iron bushing.

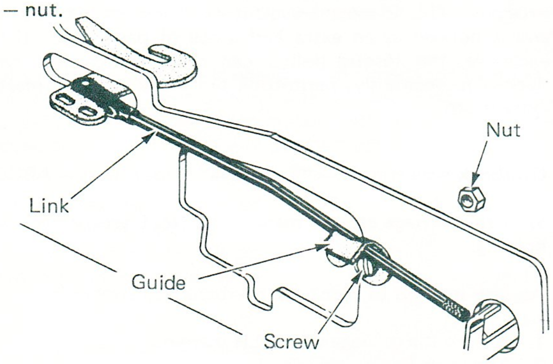
If disengagement continues to occur, add a washer between the side frame and the clutch bracket toward the front of the machine. This will change the relative angle between the clutch arm and clutch plate preventing it from disengaging.

Tape Breakage — Carriage Return Carriage return tape breakage may be caused by sharp edges on the rivet and washer of the pulley end of the tape. Breakage will occur where the tape overlaps the rivet. Check for this condition prior to installing any return tape.

Threading C/R Tapes — Service Tip

Facing the front of the machine, wind the clutch pulley spring fully and let it slowly unwind until one of the eyes in the pulley is visible from the front of the machine. With the power off, latch the clutch manually. Take new return tape and place the retaining hook of the tape on the pulley in its proper relation. Unlatch clutch and let pulley unwind two revolutions while holding the return tape. This threads the tape around the pulley and through the clutch mechanism properly. Again latch the clutch manually. Take a spring hook and catch the tape on the back side of the clutch pulley and pull the loose end through clutch mechanism at the top of the clutch pulley and thread it through the right hand carriage return pulley assembly. Unlatch the clutch to finish the hook-up, move the carriage all the way to the right and secure the end of the tape in one of the holes in the bottom of the carriage. Then move the carriage to the left, drawing the carriage return tape through the machine. It may then be removed from the bottom of the carriage and installation completed.

Typing In Overbank Problems On those Model C's where normal adjustments fail to prevent typing in the overbank and this becomes an operator problem, the installation of the following parts will, for all practical purposes, eliminate the problem. P/N 1110806 — link, P/N 1127764 — link guide, P/N 1104086 — screw and P/N 1090037 — nut.

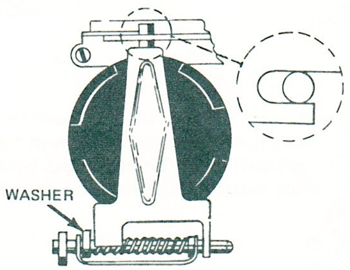


Relocate the clutch latch spring to the side frame and install the link, link guide screw and nut as shown in the illustration.

This effectively eliminates typing in the overbank, but it should be understood by the typist that there is a possibility of missing the first character entirely if she attempts to type in the overbank area.

Torque Limiter Carriage Return Tape Installation: The carriage return tape must be twisted 1/2 turn, counter-clockwise, observing from right side of the machine to clear the u-bar stud. Failure to do so will result in frayed and broken tapes.

Torque Limiter Adjustment For the torque limiter to operate properly, you must position the clutch operating arm in the rear of the slot in the clutch lever bracket. This may be accomplished by placing washers between the mounting bracket and operating arm as shown. Each washer will move the arm .030" to the rear.



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MODEL C & D COVERS & MOUNTING (Mech. 04)

Autotype Cover Removal Bottom cover removal on autotype units is difficult due to the autotype links falling off the keylever. This can be solved by wrapping a thin rubber band around the bottom of the links, preventing them from coming loose.

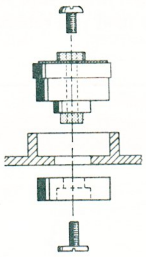
Bolting Down — Torque Limiter, Model D's Use care when bolting down Model D's equipped with the carrige return torque limiter. If long-threaded screws are used in bolting a machine down, the screw may fray or break the carriage return tape where it travels parallel to the frame. Use spacers or washers under the screw head to prevent this from occurring.

Bottom Cover Mountings — Incompatibility The Model D and late Model C bottom cover mountings are not compatible with early Model C's.

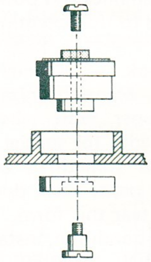
When replacing either the foot, insert, or foot screw, care should be exercised to maintain one level of parts as follows:

1. When a foot is replaced on an early Model C, all of the feet must be replaced.
2. When replacing an insert on an early Model C, the foot screw must also be replaced.
3. When replacing a foot screw on an early Model C, the insert must also be replaced.

The shouldered foot screw is used with the short insert.



New Style



Old Style

Carriage End Covers — Paint Texture Change — Model D Standard:

When replacing an end cover (04-205,206), it may be necessary to replace both end covers due to a manufacturing process change in paint texture on replacement covers.

Carriage Release Button — Loose — Service Tip A quick fix to repair a loose carriage release button is to install clip, P/N 1072821, on the post over the button hinge clip.

Carriage Release Button — Spring Removal In order to prevent the possibility of damage to the carriage end cover, it is recommended that the following procedure be followed when removing the hand carriage release button spring.

1. Depress button through end cover until spring tension is destroyed.
2. Rotate spring clip 90 degrees on its mounting stud.
3. Using 6" screwdriver as a lever, raise spring clip off the mounting stud.
4. Press new button and spring assembly onto stud.

Cover Interlock Adjustment: When experiencing Fabric Ribbon reverse failures, do not overlook the possibility of the front panel interlock not contacting the actuating interlock lever. Form cover interlock for proper adjustment.

Front Cover Adjustment Excessive side play in the front cover can be minimized by one of two methods. If the machine has washers under the cover latch screws, they can be positioned left or right under the screw heads for good cover fit. If there are no washers under these screws (later-level machines do not have these washers), the upright lugs on the cover latch brackets can be formed outward for the desired results.

Mounting Stud To Mount Model C's — Don't Use Model 72 The Model 72 mounting stud should not be used to mount Model C ET's. This stud is designed for the Model 72 and will not support the weight of Model C's and D's.

Mounting With Position Pins — Noise Noise may sometimes occur when a machine is mounted on a metal desk with positioning pins. The noise is usually caused by metal pins vibrating inside the mounting holes in the desk. To eliminate this condition, drill a 3/8" hole in the desk (purchase 3/8" drill locally) and install a rubber grommet, P/N 220690, (available from local DP stock) in each hole. The grommet will isolate the positioning pins from the desk and eliminate the noise.

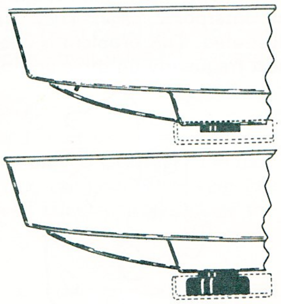
Positioning Pin Usage — Safety Check: When using positioning pins to hold the typewriter in position, the pins should not extend so far under the desk as to present a hazard to the operator. Use of the proper length positioning pin should be checked upon installation.

"Selectric" Typewriter Foot To Protect Desk — Service Tip When removing typewriter from bottom case, the new one-piece "Selectric" Typewriter foot can be used for desk top protection.

Tilt-Up Front Mounting Screws Replacement After using the tilt-up, be sure to install at least one of the front mounting screws which was removed prior to raising the machine to the tilted position. The installation of this screw is needed to prevent the machine from shifting within its covers if it is ever moved or lifted.

Tilt-Up — Service Tip Whenever machine tilt-up is desired, it may be readily accomplished by removing the two front feet instead of the screws.

Typewriter Stands — Installing Model D When installing a Model "D" Typewriter on a frame-type metal stand, a problem can occur with the base feet bracket interfering with the bottom cover. To ensure a solid mounting, install B/M 1271273. This B/M raises the machine 3/8" and allows clearance between the bracket and bottom cover.



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MODEL C & D DUAL RIBBON (Mech. 15)

Dual Ribbon Reverse Faulty Faulty ribbon reverse on dual ribbon ET's may come from the carbon ribbon rewind release plate being too close to the left-hand fabric reverse bracket assembly, preventing the reverse cycle from completing. Form the plate away to obtain the proper clearance and check to see that the lower-left ribbon guide does not strike the cover when closed.

Intermittent Feed Failure — Dual Ribbon — Model C: Intermittent ribbon feed failure on dual ribbon ET's may be traced to the reverse lever rubbing on the inside of the top cover. Form the lever down so it will just clear the teeth of the ribbon spool.

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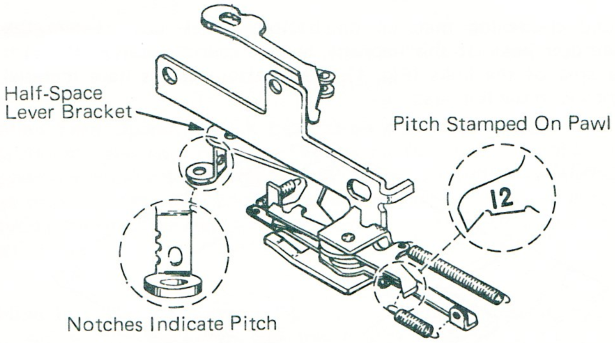
MODEL C & D ESCAPEMENT (Mech. 06)

Escapement Bracket — Pitch Identification — Model "D" Standard: The pitch of the escapement bracket is indicated in 2 ways. The pitch number is stamped on the pawl and notches in the half-space lever bracket (Figure 1) indicate pitch.



(Figure 1)

Notch identification: 0 = 10 pitch, 1 = 8 pitch, 2 = 9 pitch, 3 = 12 pitch, 4 = 11 pitch, 5 = 14 pitch, 6 = 6 2/5 pitch.

Escapement Failures If experiencing type crowding due to escapement failures, do not overlook the possibility of rough spots on the escapement trip lever stud.

Escapement Failures — Erratic — Service Tip A binding trip link clevis can cause erratic escapement failures. If an elusive escapement problem is noted, spread this clevis slightly.

Escapement Failures — Standard and "Executive" Typewriters Escapement failures may be caused by the desk pad or the bottom cover (Model C) binding against the mainspring drum gear. On "Executive" ET's a similar binding condition may choke off the interposer links and interposer bellcranks, causing skipping or crowding characters.

Escapement Failures — "Executive" Typewriter: Failures may be attributable to a weak two-unit interposer spring. If you experience this problem, a possible cure would be to add tension to this spring or substitute the three-unit spring.

Escapement Failure — "Executive" Typewriters If it is found that an "Executive" Typewriter is getting only four units of escapement when five (5) pawls are being knocked out, the pawls are probably partially grouped. Check by moving the grouping lever away from the pawls.

Escapement Failures — "Executive" Model D: "Executive" escapement failures can be caused by the following:

1. Bent carriage bed teeth binding on star wheel.
2. Wrong lubrication in the interposer cage assembly. Flush the cage thoroughly with IBM cleaning fluid and relubricate with IBM No. 2 oil.

3. No. 5 escapement pawl too long, causing erratic escapement.

   To diagnose, type a series of three-unit characters. If every fifth character has excessive spacing, and this cannot be corrected through normal adjustments, replace the pawl block assembly.

4. Twenty inch machines only — plating in rail groove may flake, causing truck rollers to bind.

5. Sound deadening material on bottom panel may contact the interposer links. If this happens, remove sound material ONLY in the area of the links (Fig. 1). New bottom panels have material removed in the link area.

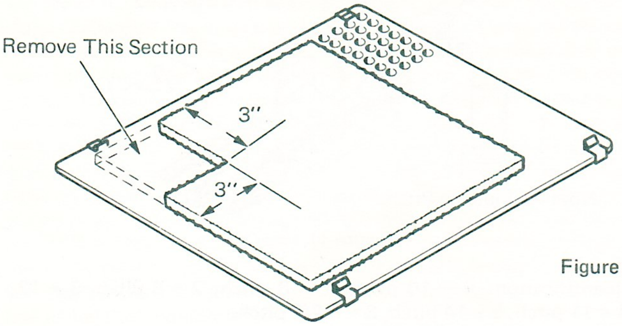
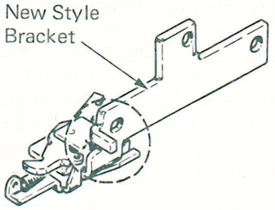


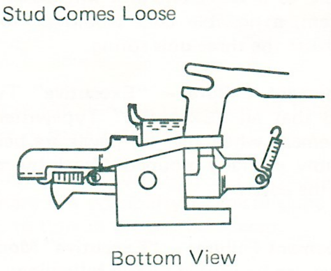
Figure 1

Escapement Pawls — "Executive" Typewriter — Should Be Washed All "Executive" Typewriter escapement pawls should be washed before assembly. This applies with new parts as well. Some escapement failures, immediately after the installation of new parts, have been traced to sticky pawls.

Escapement Pawl Bracket — Modified: The Model "D" Standard escapement pawl bracket has been modified in order to eliminate a roll-pin from the rear rail. Replacement of an old-style pawl bracket will necessitate removing the roll-pin from the rear rail.



Escapement Pawl Mounting Stud — Loose — Model D Standard: Some machines have been shipped to the field with improperly heat treated pawl mounting studs. These studs may come loose after a few hours of machine usage. If a loose mounting stud is found, replace the entire escapement bracket assembly (06-304).



Escapement Rack — Replacement When replacing escapement racks on Standard or "Executive" Typewriters, any roll or dowel pins should be removed. The pins are used to facilitate manufacturing and are not necessary for escapement rack replacement.

Frayed Or Worn Tapes Carriage return and carriage tension tapes can cause escapement and other carriage movement associated problems. A check for frayed or worn tapes should be included in your inspection procedure.

Pawl Release Stud Lever — Field Installable: A field installable pawl release lever stud is available. This stud, P/N 1231804, should only be used on machines that have a service call resulting from the pawl release lever rivet coming loose and falling out. Use a C-clip from parts packet No. 3 to mount the new stud. It is not necessary to remove the pawl block assembly. Installation time approx. .2 hours.

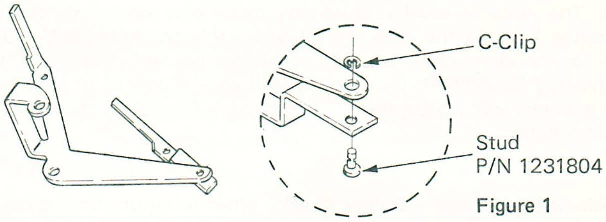


Figure 1

U-Bar Adjustment When a U-bar requires adjustment on a standard model, a good technique that doesn't require removal of the centrifugal governor or tipping the machine on its back is as follows:

1. Remove the platen and deflector.
2. Position the carriage so the U-bar adjusting screw can be seen through one of the holes in the inner carriage.
3. Insert 1/4'' end of the 1/4'' x 5/16'' open wrench into the hole and onto the hex head of the screw.
4. Move the carriage to the left or right and you will have enough wrench movement to loosen and tighten the screw.

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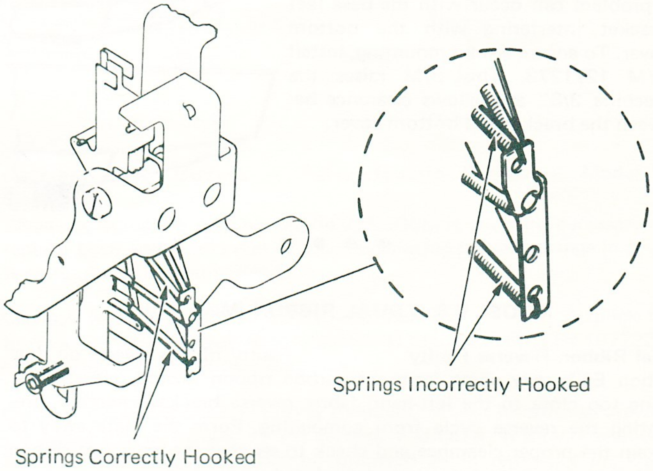
MODEL C & D ESCAPEMENT CONTROL (Mech. 07)

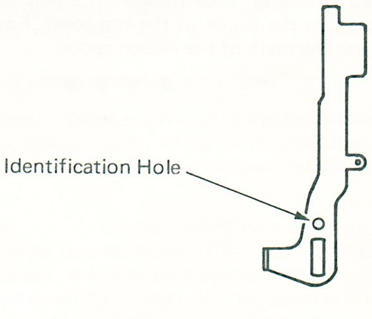
Escapement — Extra Units: If experiencing one extra unit of escapement, check the mounting of the interposer restoring springs on the interposer cage. They should be connected from the side as illustrated. This problem is peculiar to 1/32 pitch machines and occurs most frequently on three unit operation.



Interposer Identification: "Executive" interposers are now being marked with identification "holes" rather than notches.

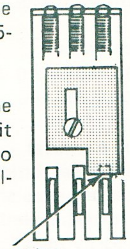
Identication Codes:

None — 1/32 pitch
One — 1/36 pitch
Two — 1/45 pitch



Malselection Remedy – 5-Unit When experiencing 5-unit malselection, do not overlook the possibility of the 5-unit Interposer Selector Bail restoring too far to the front of the machine and sticking. To prevent this condition, install the 5-unit Bail Stop.

The 5-Unit Bail Stop should be positioned with the bellcrank guide bracket screw so that when the 5-Unit Bail is at rest, there will be a clearance of .010" to .015" between the 5-unit bellcrank and the 5-unit bellcrank stop.



Replacement Of Rail Support And Interposer Assembly

1. Remove cases.
2. Remove rear frame assembly with motor.
3. Remove trip link.
4. Loosen and tape interposer connecting links.
5. Remove interposer bellcrank guide bracket.
6. Remove rail support bracket screw.
7. Loosen, but do not remove the mounting screw on the right end of the rail support bracket.
8. Remove rail support bracket.
9. Remove the screws holding rail support and interposer assembly and remove same through the rear of the machine.

Reverse the above for installation.

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MODEL C & D FABRIC RIBBON (Mech. 13)

Cover Interlock Adjustment: When experiencing Fabric Ribbon reverse failures, do not overlook the possibility of the front panel interlock not contacting the actuating interlock lever. Form cover interlock for proper adjustment.

Drive Gears Try this quick method next time you change a fabric ribbon drive and reverse gear. Loosen all the screws on the feed and reverse shaft. As you slide the shaft out, use your letter cam fulcrum rod and follow the shaft out. This will allow you to change the gears without dropping the parts.

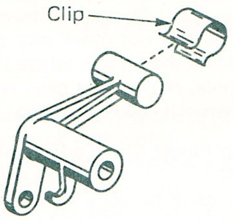
Objectionable Idle Noise: Objectionable idle noise may be eliminated by disassembly of the drive gear and relubricating it with No. 23 grease and/or positioning the intermediate gear so that it does not bear down on the drive gear.

Red & Black Ribbon Tracking Check List Many stubborn red and black tracking problems may be overcome by referring to the following list of suggested corrections:

1. Raise the corner guides as high as they will go.
2. Make sure there are no binds in the ribbon lift guide.
3. Move pointer as far back as it will go without hitting the front scale.
4. Take all excess play out of lift mechanism.
5. Make sure ribbon vane is straight.
6. Place a 1/16" shim under the rubber stop in the ribbon lift mechanism.
7. If necessary, cut about 1/8" off the tip of the position 39 cam to bring the underscore into line.
8. Adjust ribbon drag so that it is equal in both directions. Increased tension of ribbon spool compression spring will improve tracking in most cases.
9. If there is a repositioning indicator, install a plastic shield to stop ribbon from hanging up on wire.
10. Replace ribbon lift bail spring with a heavier compression spring.
11. Test ribbon in both directions.

Reversing Failures: Some fabric ribbons with plastic spools which may cause reversing failures have reached the field. Check the first two winds of ribbon; if sticking to spool, replace the ribbon.

Ribbon Cover Interlock Worn To quickly fix worn fabric ribbon cover interlock levers, install retainer clip, P/N 1138464, over the worn area as shown.



Ribbon Feed Failures – Intermittent If intermittent ribbon feed failures occur, check the clean clip. It may be rubbing against the top cover.

Ribbon Feed Operating Link Installation And Adjustment Installation and adjustment of the ribbon feed operating link, at its connecting point with the ribbon cam, may be readily accomplished by first disconnecting the spacebar operating link at the cam end, and rotating the spacebar cam forward to allow a better view of the hole in the ribbon cam.

Ribbon Lift Check – Service Tip To easily observe high and low ribbon lift trackings, rub the typebar face in question with secretarial correction tape and type a sample. The white material from the tape will show up the typed character on the ribbon.

Ribbon Lift Failures A binding ribbon lift may be caused by poor alignment of the mechanism. To ensure proper ribbon lift action, loosen the two holding screws and apply a slight pressure to the black ribbon lift shaft. The pressure should be toward the right. With the mechanism in this position, tighten the two holding screws.

Ribbon Lift Guide Adjustment Adjustment of the ribbon lift guide on machines bolted down or operating on autotype applications is facilitated by removal of typebars in position 21 through 24, which exposes the clevis for adjustment.

Ribbon Reverse Failure Ribbon reverse failures may be encountered on machines with the modified mechanism if the ribbon feed link is maladjusted. Check for the following condition on machines experiencing reverse failures or damaged drive gears.

With the parts at rest and the feed and reverse shaft to the right, the ribbon feed clutch lever must clear the top of the transfer wheel bracket by 1/8" ± 1/32". If the ribbon feed link is adjusted too long, interference will be encountered between the feed clutch lever and the transfer wheel bracket. If adjusted too short, the link drive lever will strike the cam bearing support screw when the cam is on the high point.

Ribbon Reverse Failures – Intermittent Check the cover interlock link. There should be no contact between the link and reverse lever latch with the front cover closed. Form the link to satisfy this condition.

Rapid Rewind Quick rewinding of the positive drive fabric ribbon mechanism, to facilitate checking ribbon reverse adjustments, etc., may be accomplished as follows: Operate the "Ribbon Rewind" button, with the left thumb while pushing the feed gear toward the right with the left index finger.

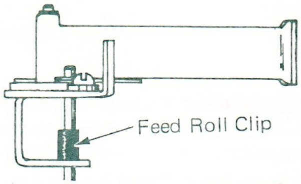
Rapid Rewind – Erratic Check serrated diameter of the power roll pulley for wear, if rapid rewind is erratic. A groove worn around this diameter by the transfer wheel will cause a hesitant rewind.

Right-Hand Spool May Have Rough Edges Increased ribbon life and improved ribbon feed characteristics can be obtained on Model C fabric ribbon typewriters by checking for and removing rough edges or plastic flashing occasionally found on the plastic ribbon spool.

Reverse Lever Latch Installation When installing reverse lever latch, on Model C Standard ET's between approximate S/N 1385679 and S/N 1430917, drill a 7/64" mounting hole midway between the existing mounting hole and the keylever fulcrum wire hole. This will permit installation of the new lever on the above S/N ET's without the necessity of replacing the keylever bearing support.

Reverse Gate Sluggish: The gate does not always move freely and therefore may not move into the path of the sensing finger. To free up the gate in those cases where the gate pin appears to be too tight in the spool hole, remove the gate, ream out the spool hole with the six flute Bristo wrench and replace the gate.

Sensing Finger Clip To Prevent Bind – Early C Ribbon reverse failure on early Model C's may be traced to the LH sensing finger bracket riding up on its shaft and binding and bending the sensing finger arm. Installation of a feed roll clip (see illustration) will limit upward motion of the bracket.



Type Rest Spring – Model C

Transfer Wheel Tire – Don't Use Cleaning Fluid On Fabric Ribbon Model C: Deterioration can be caused by soaking these tires with IBM Cleaning Fluid. Cleaning fluid should not be used on these tires. To clean, use clean dry cloth or replace the tire.

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FRAMES (Mech. 08)

Tension Tape Pulley Guard Lug – Replacement: The tension tape pulley guard lug which is part of the power frame is NOT formable. If an attempt is made to form it, it will break.

If the lug is inadvertently broken off, one way it can be replaced is by ordering bracket, P/N 1071209. Remove the pulley from this bracket and cut off the bracket one-fourth inch below the pulley mounting hole. Mount the section of the bracket with the guard lug to the power frame using the pulley and stud from the machine. **Note:** The hole in the bracket may have to be enlarged slightly.

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MODEL C & D GOVERNOR, DECELERATOR, AND CARRIAGE TENSION (Mech. 05)

Centrifugal Tab Governor Covers Tight: A method for easy removal of the centrifugal governor cap is to use a drive belt turned wrong side out and held tightly around the cover.

Decelerator Drum Gear Can Cause Escapement Problems: An eccentric decelerator drum gear can cause escapement problems. Check to ensure no binds exist between it and the governor pinion gear.

Decelerator Failure – Check Governor Collar What may appear to be intermittent decelerator failure (carriage returning hard; no governor action) may actually be a loose governor pinion gear.

Decelerator Removal – Model D: Rear frame (11-137) has been modified to allow removal of the decelerator without removing rear power frame. This can be accomplished by the following procedure:

1. Disconnect carriage tension tape (05-037) from decelerator.
2. Remove governor asm. (05-001).
3. Disconnect springs (05-034).
4. Remove adj. plate (05-017).
5. Loosen decelerator, slide to rear through enlarged hole in rear frame and remove through bottom of machine.

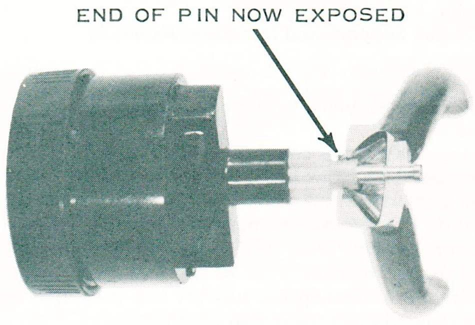
Note: The rear frame P/N remains the same.

Escapement Failures An overthightened governor cap will deform the ribber seal enough to contact the governor arms causing subsequent escapement problems.

Mainspring Tension Control Whenever it is necessary to remove the carriage tension tape from the spring drum, the following procedure may be used. Attach a 30 inch carriage tension tape to an adjacent drum lug before removing the tension tape. In this manner, it will be possible to control the unwinding of the mainspring with no danger of the drum slipping from your grasp. When the mainspring is to be wound again, simply pull on the extra tension tape. This method assures the same carriage tension as before the mainspring was unwound.

No Deceleration If little or no deceleration seems to be a problem, move the decelerator spring clip to the other end to improve decelerator action.

Roll Pin Removal – Centrifugal Governor Pinion Gear: The roll pin may easily be removed from the pinion gear by squeezing with the diagonal cutters as shown below. This will raise one end of the pin far enough to be pulled out of the gear hub. The replacement gear may then be easily installed.



Tension Tapes Coming Off Pulley To prevent carriage tension tapes from coming off the tension tape pulley, a C-Clip P/N 60488, or a grip clip, P/N 1115058, may be installed to the rear of the pulley on the power frame boss.

Tension Tape Pulley Guard Mounting Broken – Model C The tension tape pulley is mounted directly to the frame. In rare instances, the frame extension has cracked or broken off. One way to fix this is to smooth off the broken casting and install a bracket, P/N 1071209 (which was used on Model A). This will require drilling and tapping two holes for screws, P/N 38364.

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HEKTOWRITER (Mech. 31)

Hektowriter Ribbons – Discontinued: Hektowriter ribbons are no longer manufactured. Customers should be advised that these ribbons are no longer available from IBM.

Removal Of Hektowriter Attachment

Should a customer desire to have the attachment removed, Customer Engineering will do so only on a billable basis.

Increasing Hektowriter Ribbon Feed When unable to obtain sufficient ribbon feed on the Model D Hektowriter, and all adjustments are correct, try the following: Move the actuating lever assembly 1/2" towards the front of the machine. This can be done by using a No. 2 drill to relocate the mounting holes for the two mounting screws Replace the link with a shorter link, P/N 1077880. Now, adjust the feed as usual. This will approximately double the amount of ribbon feed available.

NOTE: When the actuating lever is moved towards the front of the machine, it is possible for its finger to contact the power frame casting. If this occurs, use the round file to remove the obstructing portion of the casting.

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MODEL C & D KEYBOARD LOCK AND BELL (Mech. 09)

Louder Bell If a louder bell is desired by the operator, install washer (P/N 157986 – Parts Packet No. 8) between the bell and tab check lever keeper. Also, check to see if the backspace pawl link is touching the bell as this will tend to muffle the sound.

Overprinting At Right Margin If a timing condition exists between the operator and the machine at the right margin, replace the rear linelock link with a spring. This can be made by cutting a 1-1/4" piece from a typebar rest pad spring.

In many cases an operator will release a key at the time when the linelock bail contacts the keylever. This partially depressed keylever will prevent the linelock bail from operating and permit overprinting.

Linelock Quick Adjustment On Model C ET's equipped with removable keyplates, it is easier to make linelock adjustments from the front of the machine. Remove the keyplate and form the lug on the linelock with a T-bender. This saves rear cover removal and clevis adjustments.

Shift Lock Spring/Linelock Bar Interference — Service Tip If shift lock spring interferes with the linelock bar, the bar can be repositioned slightly by installing C-Clips or washers on shaft between linelock bar and linelock bushing.

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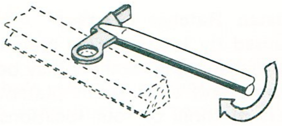
MODEL C & D MARGIN (Mech. 10)

Margin Release Adjustment Model D If a margin release cannot be adjusted sufficiently to allow the margin control lever to reliably clear the margin stop, the tab latch may be restricting the tab lever. The tab latch can be formed down slightly in the area shown to give the desired clearance.



Margin Set Link And Bellcrank New-Style In situations where the margin set link continually disengages from either the button or the bellcrank, the new-style link* and bellcrank** should be installed. However, do not interchange parts as the old-style bellcrank is not compatible with the new-style link.

P/N	DESCRIPTION
1190408*	Link, Margin Set
1171598**	Bellcrank, Margin Set

Multi-Tooth Slider On Broken Rack When a tooth breaks off a margin rack using a single pin slider and margin stop, try a multi-tooth slider and stop until the rack can be replaced. It may save the customer some "down time".

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MODEL C & D MOTOR AND DRIVE (Mech. 11)

Binding Motors - Model C Occasionally the motor bearings will bind on ET's recently installed. In most cases this is due to improper alignment of the self aligning bearings and can be corrected by giving the motor a sharp tap on the end of the shaft.

Double Pole Switch — Lead Removal: The leads may be removed from the double pole switch by inserting the smallest bristo wrench alongside the wire to release the gripper.

Clutch Pawl Noise: To reduce noise of the motor clutch pawls on extremely noisy motor clutches, replace the nylon spacers with the bowed washer (P/N 1072477). The bowed washer is located in Parts Packet No. 8.

End Bells — Removing From Motors After removing the end bells from any motor, check the motor leads for possible breaks in the insulation. There is a possibility that the insulation can be broken when the end bell snaps loose from the motor housing.

Linecords — Broken Wires: Some machines may have been shipped to the field with broken wires in the linecord. If a broken wire is suspected, unplug the machine and make a continuity check while flexing the cord in the area of the molded plug. If a broken wire is found, replace the linecord.

Motor Mount Replacements Motor mounts may be quickly replaced by the following procedure:

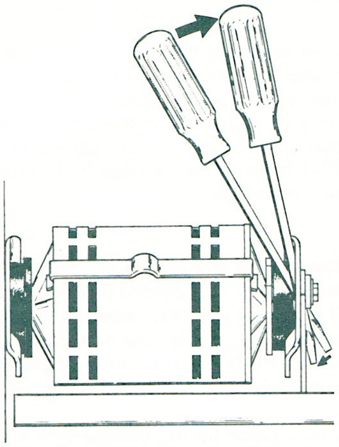
1. Unplug the machine.
2. Remove the rear cover, motor pawls, pulley and belt.
3. Use screwdriver and duckbills to remove the left mount.
4. Put the machine on its back and with the bottom panel removed, move the motor to the left and remove the right mount.
5. Keep the motor to the left, slip on the new right mount. Move the motor to the right.
6. Set the machine down. Slip the new left mount over the shaft. With one hand on the motor shaft, the motor can be moved up and down, forward and backward while working in the left mount.
7. Replace the pulley, pawls and belt. Adjust as needed.

Motor Mounts — Vibration — Model D: Some Model Ds have reached the field with hard motor mounts (P/N 1190434) that could cause vibration and noise. These motor mounts are stamped with the letter "J."

Note: Also check the drive and driven belt tension adjustment.

Motor Pulley — Binding — Model D: Some 14 and 15 tooth motor pulleys (11-104) have excessive plating which could cause a bind on motor shaft and machine lockup. To correct, remove pulley, flush and lubricate with No. 10 oil. If binding condition still exists, replace pulley.

Motor Removal — Models B & C A method for quick motor removal is illustrated.



1. Remove the rear cover and motor pulley.
2. Tilt the machine on its back and remove the bottom panel.
3. Insert the blade of the large screwdriver between the right motor clamp and the right end of the motor.
4. Gently pry the clamp to the right and the motor to the left. At the same time, work the motor out until it is clear of the right clamp.
5. Remove the motor from the machine.
6. To install a new motor, insert the left end first, then the right end.
7. Be sure the motor leads are stretched tight.

Motor Replacement Install Vinyl Tubing When replacing a motor, be sure to install vinyl tubing over motor lead wires.

Power Rolls — Care In Handling Occasionally power roll shaft seems to be too large to fit into the power roll bearings. This is the result of tiny nicks or burrs on the shafts caused by rough handling. Light filing of the ends of stubborn shafts will remove this type of flaw and should be tried even if the shaft appears to be undamaged. Use care in handling and storing power rolls to avoid damage.

Power Roll Storage It is recommended that power rolls be stored in a vertical position. A temporary flat surface "set" may result if power rolls are stored in a horizontal position. This "set" can result in unevenness of impression immediately after installation.

Power Roll Removal Autotype The following procedure can be used to remove a power roll from Model C ET's which are installed on autotypers, eliminating the need of removing the bottom cover.

1. Remove the top cover and keyplate.
2. Remove the ribbon feed mechanism (new style).
3. Latch the carriage return.
4. Set the typewriter on its back.

5. Remove the power roll pulley.
6. Remove the ribbon lift link.
7. Remove the three power roll bearing screws (with offset screwdriver).
8. Remove the ribbon rewind wheel (old style).
9. Remove the power roll bearing from the power roll.
10. Grasp the power roll and move it to the left.
11. Pull the right end down and remove the power roll.
12. Reverse the procedure to install the new power roll.

Power Roll Shaft Grease Both shafts of the power roll are grease coated for rust prevention during storage. REMOVE this coating from the right shaft when installing, to prevent grease contamination of the carriage return disc.

Shaded Pole Motor Clutch Interference: On some Model C ET's when the carriage is moved to the left, the rubber feet may compress and allow the motor clutch to touch the LH tilt-up track. This same condition may occur during tab-carriage return operation if the motor mounts should flex downward. In most cases, the cause of difficulty is due to the track being too far inboard and can be remedied by moving the track to the left as far as possible in its mounting holes. In some cases, there may be a flash along the boss which positions the track. This flash should be filed off if found. Some CE's have been filing a larger relief in the track to provide clearance for the motor clutch. This is only necessary when the belts have stretched and the motor and intermediate pulley are adjusted all the way to the rear. The relief in the RH track has been enlarged an additional .030" for an extra safety factor on clearances.

When adjusting the motor clutch spring washer tension, the clutch hub should be positioned to compress the spring washer so that the starting click of the motor pawls is barely audible, yet allowing the pawls to safely disengage when the motor is turned off while heavily loaded. A good way to check this adjustment is to engage the carriage return while holding the carriage, then shut off the motor. The clutch pawls must disengage.

Shaded Pole Motor — Lubrication It is recommened that the Model C & D shaded pole motor bearings be lubricated with No. 10 oil every six months, rather than once a year. The increased operating temperature of this type motor decreases the life of lubricants. Lubrication intervals for the motor shaft and centrifugal clutch assembly remain unchanged.

Switch Lever Spring Interference — Auto Typist Model C ET's installed on "Auto-Typist" machines may experience interference between the switch lever spring and the hookwire guide rod of the "Auto-Typist". (Relocate the switch lever spring or shorten the guide rod to eliminate this interference.)

Voltage And Current Identification Requirements: All Model D and D machines must be equipped with a sticker showing voltage and current requirements. The parts numbers for the stickers are shown in the C and D parts catalog, Mech. 04. These stickers can be used on machines with any voltage, bu the voltage requirements must be written in.

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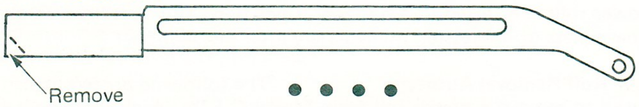
MODEL D NO PRINT (Mech. 20)

Interference Between No Print Anvil & Number 43 Typebar If the No Print anvil interferes with the operation of the number 43 typebar, the lower LH corner of the anvil must be removed with side cutters.



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MODEL C & D PLATENS (Mech. 12)

Linespacing Failures — 66T Ratchets Some linespacing failures on 66T ratchets can be traced to a blunt index pawl. Stoning the point to a sharper edge will aid in correcting this trouble. Also, for correcting linespace trouble on any ratchet, using the heavy 66T detent spring may help.

Platen Clutch Removal Whenever the clutch cover is removed from a platen, it should be marked to ensure that it will be replaced in the same position. If the cover is not replaced in the same position, the platen may be eccentric.

Platens Not Compatible With "D" Platen Knobs Old-style platens with the screw-on platen variable button cannot be used with Model D platen knobs. The platen variable button cannot be depressed. Use new-style platens on all Model D Typewriters.

Platen Identification The location of the stamped code for rubber hardness identification has been moved from the left end of the platen rubber to the right platen end plug to provide an identification that is more legible. All platens, except pin feed platens, will carry the new identification.

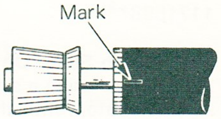
Platen Knobs — Black — Model D: New machines will be equipped with black platen knobs. Only black knobs will be available for field replacement. When replacing other than black, both right and left platen knobs should be ordered.

Platen Ratchet Slippage Platen ratchet slippage may be caused by incompatible platen ratchet drivers, shaft and ratchets. Potential slipping ratchets may be identified by holding the platen ratchet firmly and twisting the platen. Release the platen variable button and test at three or four locations. Protect the hand holding the ratchet with a clean shop cloth.

Ratchet slippage may be corrected by one or more of the following techniques:

1. Replace ratchet driver.
2. Replace retainer.
3. Increasing tension on the platen driver springs.
4. Add shim washers, P/N 1078497, between the driver and cover to provide maximum driver and ratchet engagement with minimum end play.

Platen Ratchet Slippage To check for platen ratchet slippage on platens with the one-piece platen ratchet, mark the platen and the tooth and repeat linespace. If the marks separate, the ratchet has slipped.



Platen Storage If you carry or store platens in your car, leave them in the styrofoam shipping cartons to prevent them from being damaged.

Platen Swelling Platens may be affected by the chemicals used in some brands of carbonless carbon paper. For machines using this type paper extensively, a No. 9 platen may be required to prevent swelling. Use of bond paper or similar backing on machines using this paper intermittently will help reduce the effect on the platen.

Platen Variable Button Removal — Model C The utilization of the smooth side of a cog belt makes the removal of the Model C platen variable button an easy matter. This is accomplished by wrapping the belt around the button and gripping the belt in the same manner used to loosen the centrifugal governor cover.

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MODEL C & D SHIFT (Mech. 16)

Segment — Spring Breakage — Model D: Some Model Ds were shipped to the field with rough edges on the segment support where the springs are mounted, causing segment guide spring breakage.

Use a file to smooth the edges of the segment where the springs are mounted.

Shift Failure Occasional shift failure may be traced to binds in the shift toggle links. If this condition exists, lubricate the lower link bearing surface with IBM No. 23 grease and the mounting stud with IBM No. 10 oil.

Shift Lock Failure To Restore Occasional shift lock failure to restore on "Executive" Typewriters may be traced to excess end play in the 5-unit selector bail interfering with movement of the shift lock. Forming the shift lock lug slightly to the right, away from the selector bail will correct this condition.

Shift Stop Screw Adjustment Affects Others If any adjustment is made to the shift stop screws, it is necessary to check the adjustment of the T-bar bracket and drive link adjusting screw as outlined in the C&D Adjustment Manual. This is to ensure you have the proper clearance between the side plate window and the T-bar roller.

Shift Toggle Plate — Check For Alignment Trouble When alignment trouble exists in a machine and the basket seems to be shifting to the left or right, the trouble may be occasionally caused by a loose shift toggle plate. The symptoms of a loose pin are lower case characters crowding next to the upper case characters. The shift toggle plate should be replaced if the link pin is loose.

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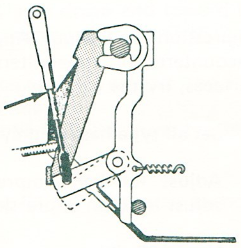
MODEL C & D SPACEBAR (Mech. 17)

Clip Interference With Keybuttons If the spacebar shaft retainer clip is turned on the spacebar shaft assembly so that the open portion of the clip is up, the clip can sometimes interfere with the keybuttons, locking both the keylever and spacebar. The open portion of the clip should be down.

C "Executive" Typewriter Spacebars — Reversing: An operator may prefer that the left spacebar escape 2 units and the right spacebar escape 3 units. Reversing the "Executive" Typewriter spacebar escapement may be easily accomplished by the following procedure:



Replace With Link Part No. 1000019

Replace the connecting link between the spacebar keylever and the interposer lever, with longer link, P/N 1000019. The longer link should be adjusted to allow the interposer to clear the bottom of the formed lug on the spacebar actuating lever by a minimum of 1/32" when the left-hand spacebar is operated (at the point of cam trip). When the right-hand spacebar is depressed, the interposer will contact the actuating lever causing three units of escapement. When the left-hand bar is depressed, the interposer will move below the actuating lever, allowing only two units of escapement.

Spacebar — Prevent Lockout: The spacebar lockout lug on the linelock bar (09-4) may be formed to prevent locking out the spacebar when the machine is turned off. This will prevent the spacebar from snapping out of the retainers on late-level Model D typewriters or from bending the trip lug on early-level machines when the spacebar is depressed while the machine is "off."

Spacebar Typamatic Action Crippling 3-Unit Occasionally someone requests that the repeat action of the 3-unit spacebar be crippled. An easy way to do this is to use one of the basket shipping grommets. Cut off the "handle" end of the grommet and slip the slotted portion over the front frame in the notch below the keylever. The grommet will not come off and provides a good stop.

Spacebar Touch Problems Model C In spacebar repeat touch problems, use spring, P/N 1102139, for a heavy touch of 31 ounces and spring, P/N 1117933, for a light touch of 18 ounces. Normal Model C repeat spacebar tension is 24 ounces.

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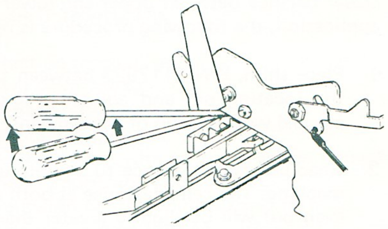
MODEL C & D TAB (Mech. 18)

Tab Lever Heavy Duty Model D Standard and "Executive" Typewriters are being manufactured with the heavy duty tab lever. This eliminates the tab lever shim. On "Executive" Typewriters with the heavy duty tab lever, a new "higher-lobed" tab cam is being used to ensure the tab lever has enough throw.

Tab Lever — Modified: The lower tab lever extension has been modified to eliminate the nylon stop on the rear rail (18-63). Installation of the new lever on machines piror to this change will necessitate removing the nylon stop.

Tab Lever Replacement Outlined below is a good method for tab lever removal.

1. Remove the platen, deflector, left carriage end cover and margin reset lever.
2. Disconnect the tension tape and screw it to the right rail end.
3. Remove the tab lever mounting stud.
4. Push the carriage to the right until the left carriage end plate contacts the final stop on the tab lever.
5. Place the large screwdriver between the tab lever and the end plate and force the tab lever down. This will allow you to push the carriage past the final stop.
6. Disconnect the tab latch spring and tab decelerator link. The tab lever can be lifted straight up and out.



7. By reversing this procedure the tab lever can be replaced.

The tab lever stop must be intact on the rear rail to ensure reliable tab lever operation.

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MODEL C & D TYPEBAR OPERATING (Mech. 19)

Cam Lever Assembly Riding Over Power Roll To prevent cam lever assemblies on the Model D from riding over the power roll additional secondary knock-off screws can be installed.

Cam Lever Installation Letter cam levers have reshaped spring anchor lugs for mounting the cam lever spring. When installing new cam lever assemblies in earlier level machines, it is necessary to carefully form these spring lugs to a 45 degree position to avoid possible interference with former-level letter cams in adjacent positions.

Cam Bearing Support Wear — Model D: Some Model Ds used in heavy applications are experiencing cam bearing support wear in the area of the letter cam fulcrum rod.

This wear can cause intermittent typebar operating problems such as varying impression and letter cams tripping off without the keylever being struck.

This wear is caused by the fulcrum rod rotating in the bearing support. To prevent the rod from rotating, slide it out approximately six inches and put a slight bow in it. (**Note:** The power roll will hold the cams in place.) If excessive wear is found in any bearing support, it should be replaced.

Dead Typebars — Failure To Restore Dead typebars occasionally fail to restore due to the absence of any pressure from the universal bar. Production machines now use a heavier cam lever spring, P/N 1098593, in these positions to ensure the typebar restoring. This may be done in the Field if failure to restore occurs.

Finger Bar And T-Bar Assembly Removal

1. Remove the two control plate springs.
2. Remove the two upper screws from the finger bar bracket.
3. Move the finger bar fulcrum wire left and then right disconnecting the impression control arms.
4. Disconnect the bail control link and the shift cam release link.
5. Remove the two remaining finger bar screws and work the finger bar assembly out through the opening in the right side frame.
6. To remove the T-bar assembly, disconnect the drive link and remove the two range matching plates. The T-bar assembly can be worked out through the right side frame opening.
7. To install the T-bar and finger bar assembly reverse the procedure.

Heavy Upper Case Use the following approach to help minimize heavy upper case.

1. Raise the type rest pad.
2. Set cam clearance at .010"-.012".
3. Set shift-off from a minimum of .006" to a maximum of .015".

These three items will usually give the desired results. However, if a closer balance between upper and lower case is required for a particular application, the following procedure is recommended:

1. Place shim, P/N 1117923 between the basket and the segment over the locating pin and adjusting screw, with the thin side up and parallel with the top of the segment.

2. Readjust cam clearance to a minimum of .012" in the center of the machine. The cam clearance at both ends of the set of cams must be even but will be slightly greater than the .012" adjusted for in the center. The bowed effect results from the shimming and is necessary to obtain even color balance SIDE TO CENTER. (On some machines, the varying cam clearance can cause a difference in keyboard touch. After making this change, be sure to check that touch is acceptable.)

3. Adjust the platen eccentric to obtain .001"-.003" ring in lower case on both sides of the platen.

4. Readjust the height of the segment by means of the eccentrics to obtain even top and bottom clearance.

5. Now readjust impression. Impression will have changed greatly. The center, especially, should have become lighter.

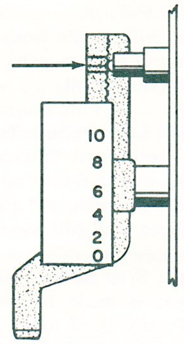
6. If the shift-off gauge is available, re-check the amount of shift-off. Shift-off should be between .008"-.012" for the best results. You may have to take segment guide spring shims out to obtain proper shift-off. A rule to go by is one .010" shim for every .005" shift-off.

You can achieve a relatively good balanced condition in the center of the impression range. If the machine is adjusted to just print at "0" impression setting, it should have a balance between upper and lower case at an impression setting between 3 and 7. Below a 3 impression setting, you may notice a slightly heavy UPPER CASE and above a 7 or 8 impression setting, you may have a slightly heavy lower case. This is natural, and the reason for this is that upper case characters do not have as much range, or difference between 0 and 10, as the lower case characters have.

On many type styles, it is desirable to have the upper case hitting slightly heavier than the lower case because the printing area is larger and needs a heavier blow to give an even impression. However, on some fine-line type styles, this condition becomes objectionable and the above refinements are necessary.

The above procedure is being used at the Plant on Elite and Pica machines with carbon ribbon. The shim used is tapered from .012"-.023" which gives a desirable amount of change. A modified pulley, P/N 1117927, is also used with this change as an interference between the pulley and the U-bar can occur.

Impression Indicator Setting With Keyplate Removed When the keyplate has been removed and you want to set the impression indicator at 5, line up the notch in the impression indicator with the impression indicator detent plunger (see illustration).



Impression — Light Letter H — Model C "Executive" Typewriter An occasional light "H" on "Executive" Typewriters may be traced to the selector bar contacting the clip spring on the impression control shaft.

Impression Tips — "Executive" Typewriters Used On Auto-Typists If the typebars fail to print evenly on "Executive" Typewriters used on auto-typists, the cause of this problem may be a bind which is caused by the interference of the interposer connecting links and the auto-type connecting links to the keylevers. Interference may be set up by too much side movement where the interposer links connect to the selector bails. This causes the interposer links to come in contact with the auto-type links on either side of the interposer links and restrict the motion of the selector bails, selector bars, etc. This results in a light impression or no impression at all. This problem can be corrected by installing a feed roll retainer clip, P/N 1110093, on both sides of the interposer link to restrict side movement.

Impression Varies From One Side To The Other When all impression adjustments are correct and the impression seems to vary from one side of the keyboard to the other, do not leave out the possibility that the K. O. Bar Adjusting Screw has worked loose. If it is loose, adjust it up or down so the bar is parallel with the impression control shaft and then proceed to refine the K. O. screw adjustments.

Impression — Vellum Applications: When impression problems are encountered on typewriters used for typing on vellum or other slick surfaces, try the following:

1. Set all type heavy on cylinder.

2. Adjust for light impression (turn impression control down and adjust for even impression).

3. Use 5122 ribbons.

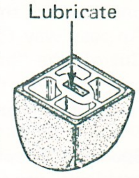
4. Place a sheet of abrasive paper such as number 600 carborundum in the machine. Type each character at least 4 times. This will roughen the face of the type slug, resulting in better impression.

   Caution: This may cause the typeface to broaden. Check to make sure other applications are not adversely affected.

Keyboard Noise Suppression Blanket Chemical cleaning of Model D typewriters may have an adverse effect on the suppression blanket. The blanket should be removed before cleaning to avoid keyboard touch problems.

Keybutton Installation When installing keybuttons, you may find them easier to install if you place a small amount of lubricant on the opening of the keybutton.

This should not be done in cases where loose keybuttons are a problem, i.e., automatic letter writing machines, etc.



Keylever Aligning Fixture A useful tool for holding keylevers in alignment during bearing support removal can be made from a spare bearing support as follows:

1. Cut the ends from the bearing support assembly.

2. File the cut surfaces to remove burrs and sharp edges.

By inserting this "guide comb" between the keylevers at a point immediately in front of the bearing support, the keylevers will be held in their correct positions during removal and replacement of the bearing support.

This tool will prove particularly valuable in converting from carbon ribbon to fabric since the fabric ribbon feed mechanism is shipped assembled to a bearing support.

Keylever Bearing Support Movement Upon loosening the keylever bearing support screw prior to keylever fulcrum wire movement, the keylever bearing support may also move.

In order to maintain the proper adjustment of the keylever bearing support, a locating mark may be scribed on both the side frame and the keylever bearing support before loosening this assembly. A "+" mark for this purpose would reference movement in any direction.

Keylever Replacement When replacing keylevers, you will find that by raising the typebar of that keylever and the adjoining bar on either side, more room is provided for removal.

Keylever Removal — Easy Method — Model C

1. Remove the cover.
2. Disconnect the keylever spring.
3. Move the keylever fulcrum wire until the keylever is loose.
4. Flex the keylever so that it will drop between the two adjacent letter cams (it may be necessary to gently pry the letter cams apart).
5. Push the fulcrum wire end of the keylever down and toward the rear until the hooked end of the keylever can slip out of the keylever guide comb.
6. Lift the keylever out. It may be necessary to remove the keybuttons adjacent to the keylever being removed.
7. A one-piece or two-piece keylever may be installed using the same method.

Keylever Removal — Model D The following is recommended for removal of a Model D Keylever:

1. Remove the top cover, rear cover and keyplate and tilt the machine up.
2. Remove the keylever up-stop, power roll and front frame on "Executive" Typewriters. It may also be necessary to remove the flipper button assembly or cut the noise suppressor blanket to remove the keylever.
3. Move the corresponding typebar to the typeguide and block it with another typebar.
4. Drop the corresponding cam and one cam on each side. (It is not necessary to completely remove the cams.)
5. Remove the keybutton and any keybuttons that will interfere with the keylever to be removed.
6. Drop the keylever in the rear and by raising the keyboard noise suppression blanket, slide the keylever down and to the rear.
7. For replacing the keylever, reverse the removal procedure.

NOTE: If installing a one-piece repeat keylever, place the repeat guide and spring on the keylever after installation.

Keylever Spring Retainer Foam Strip Must Be Removed: In order to ensure that keylever springs do not come off during shipment, a foam strip has been stuck on top of the keylever guide comb. **NOTE:** This foam strip is for assembly and shipping purposes only. It should be removed at the first opportunity to ensure spacebar touch is not affected.

Letter Cam Repeating A letter cam which repeats occasionally can be stopped from repeating by shortening cam spring (from cam shoe to cam lever) about 1/4". This can be accomplished very quickly and produces no ill effects. A good test, after making this adjustment, is to move impression indicator to 10 with machine in upper case.

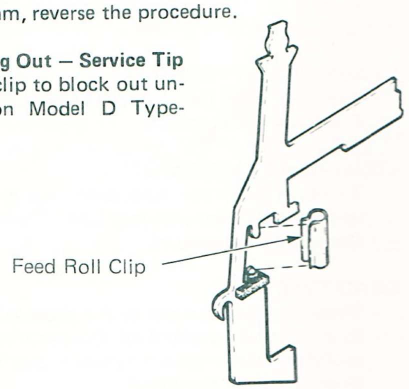
Operational Cams — Removal

1. To remove any of the right hand operational cams from the machines, the following steps should be taken.

   a. Tilt the machine up in the bottom cover.
   b. Remove the power roll.
   c. Use a screwdriver and push up on the T-bar. The cam can be dropped out through the bottom.
   d. Remove the two C-clips from the letter cam fulcrum wire and slide the wire to the left to allow the cam to be rotated down.
   e. Remove the cam.

2. To remove any of the left hand operational cams requires a different procedure since the T-bar must be disconnected. The method is as follows:
   a. Tilt the machine up in the bottom cover.
   b. Remove the power roll.
   c. Remove ribbon feed selection mechanism.
   d. Remove left hand control plate spring.
   e. Remove the four finger bar bracket screws.
   f. Remove left hand range matching plate.
   g. Push the knock-off finger fulcrum wire to the right far enough to disconnect the left hand impression control arm.
   h. Raise the T-bar and impression control shaft up and forward.
   i. Remove the left hand operating cam fulcrum wire, and the cam can now be removed.
   j. To install the new cam, reverse the procedure.

Repeat Keylevers — Blocking Out — Service Tip Use a feed roll clip to block out unwanted repeat keylevers on Model D Typewriters.



Repeat Keylevers — Quick Fix When two-piece repeat, non-repeat keylevers go into repeat position too easily, remove the keylever compression spring and replace it with a clutch operating arm spring. This heavier spring supplies a definite "repeat-position" which is more nearly equal to that on the plunger-type repeat keylevers and the Model C repeat keylevers.

Repeat Plunger And Spring Replacement When replacing or installing a repeat plunger and spring, form end loop of spring to hold plunger shaft tight. This will enable you to hold onto spring and guide plunger into place.

Segment Shim Installation If difficulty is experienced in installing this shim, it is possible to cut the shim so that the right-hand hole will slide over the top of the segment locating pin. This is soft material which can easily be cut with the diagonal cutters.

Typebar Fulcrum Wire Installation: A platen variable button can be used to push the typebar fulcrum wire back into the segment. This method is very effective and is safer than many methods now being used.

Typebars Hanging Up A worn type rest pad can sometimes cause typebars to hang to one another. When this problem is encountered, the pad can be removed, turned around and reinstalled to temporarily fix the problem.

Typebar Links Disconnecting During Type Drop To prevent the typebars from being disconnected from their links during type drop, the type rest spring can be pushed down from the pad and moved to the rear under the typebars for additional support.

Typebar And Letter Cam Assembly Wear When a typebar or letter cam assembly is worn so that the typebar link will not stay in, a changeable typebar link may be used temporarily until the worn part can be replaced.

Typebar Service – Minimize (Stencils) Pack grease in the segments of machines equipped with stencil writing attachments to minimize typebar mechanism service calls. Segment must first be clean and dry. Periodic flushing with cleaning fluid may be required.

Typebar, Typeguide, And Segment Identification

HARDENED TYPEBARS:

These typebars are hardened at the typebar link and fulcrum wire hole after manufacturing to reduce wear. The Hardened Typebar is a pre-tempered typebar available in Ground or Unground.

MODIFIED GEOMETRY TYPEBARS:

These typebars are used in positions 32, 36, 38 and 39 in the Model D Standard and "Executive" Typewriters. These typebars are made different between the typebar link and fulcrum wire hole to balance the impression for punctuations. The Modified Geometry Typebar is available in Unground Only.

CHANGEABLE TYPEBARS:

The typebars are special made in the fulcrum wire hole to allow an operator to change the typebars for different characters. The Changeable Typebar is available in Ground and Unground in positions 0, 3, 7, 11, 15, 19, 23, 27, 31, 32, 35, 36, 38, 39, 40, 41, 42, and 43.

HEAVY-HEAD TYPEBARS:

Typebars with the Anti-clash lugs. These typebars are available in Ground and Unground.

LIGHT-HEAD TYPEBARS:

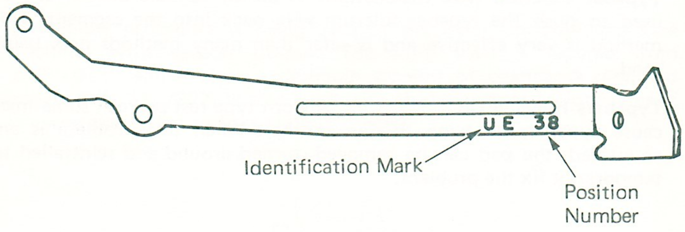
Typebars with the Anti-clash lugs ground off to prevent cutting usually used on punctuations. These Typebars are available in Ground and Unground.

DEAD TYPEBARS:

These typebars are cut at the point of contact of the U-Bar so not to achieve escapement of the machine. The Dead Typebar is not available in changeable typebars but is available in both Ground, Unground, and Hardened.

TYPEBAB IDENTIFICATION MARKS

ME	Executive Modified Geometry Typebar
UE	Unground "Executive" Typewriter
U	Unground Standard
MU	Modified Geometry Unground Standard
R	Ground Hardened
E	Ground "Executive" Typewriter
D	Unground Braille
OU	Unground Changeable

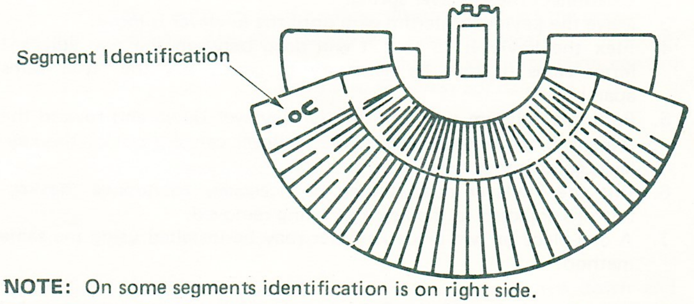


TYPEGUIDE PART NUMBERS

1103855	Typeguide used for ground typebars
1117000	Typeguide used for production (unground) machines.
1116961	Typeguide used for extra large type slugs and long. The typeguide throat has been ground down to allow good typebar entry.
1154340	Typeguide used on E-13B typewriters. This typeguide has .011" closer throat clearance to provide better type alignment. The typebars are usually harder to align with this typeguide, but will hold the alignment longer.

SEGMENTS

Description	Identification
86 Character Standard Ground	003
88 Character Standard Ground	004
88 Character "Executive" Typewriter Ground	026
86 Character "Executive" Typewriter Ground	027
88 Character 300 Motion "Executive" Typewriter Ground	032
86 Character 300 Motion "Executive" Typewriter Ground	033
Character Recognition, E-13B and Austempered Typebars	753
88 Character "Executive" Typewriter Unground	U011
86 Character "Executive" Typewriter Unground	U012
88 Character 300 Motion "Executive" Typewriter Unground	U014
86 Character Standard Unground	U268
88 Character Standard Unground	U269



NOTE: On some segments identification is on right side.

Type Guide, For Below-Writing-Line Characters When typebars with characters that extend considerably below the writing lines are installed, it is recommended that typeguide P/N 1116961 also be installed. This typeguide was designed to provide clearance with the descenders.

Type Rest Pad – Impression Trouble Impression and touch problems may be caused by the type rest pad not floating and restoring freely on its spring support. Impression varies because the cam clearance varies with the rest position of the typebar. Check for rubber dust in the area under the type rest resulting from burrs on the inside of the type rest frame assembly. It may be necessary to disassemble the type rest frame and polish the metal surfaces. Surfaces are polished in current manufacture. Make sure the type rest is free-floating on its spring support after reassembly.

U-Bar – Easy Adjustment – Model C The following method may be used to adjust the Model C U-Bar for equal tripping point.

1. Remove rear top cover.
2. Position typebars in typeguides as per Reference Manual.
3. Using the small socket wrench, approach the U-bar adjusting screw from the rear of the machine. Place the wrench between the upper right corner of the motor and the bottom of the backspace mechanism to reach the U-bar adjusting screw.
4. Make adjustment and replace cover.

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MODEL C & D SPECIAL MACHINES

MODEL C & D DECIMAL TAB (Mech. 30)

Carriage U-Bar Spring Check For Dec Tab Failures If a Model C Dec Tab fails to tab properly, the carriage universal bar restoring spring may be off. Operators sometimes knock this spring off while brushing out their machines. With the spring off, the U-bar drags across the pawl release lever enough to cause tab failure.

Cam Operating Bail Fails To Restore The cam operating bail is lightly spring-loaded through the cam lever and sometimes may not restore. This condition can be corrected by adding a spring from the extreme left tab on the operating bail to the hole in the bracket around the ribbon mechanism.

Decimal Tab Skipping Set Tab Stops This particular type of skipping results from the operator setting tab stops close together near the left-hand margin. The timing is such that the margin control lever may move past the bottom part of the LH margin stop unless the rack is positioned properly.

Tilting the margin rack clockwise (looking from the left side of the machine) while adjusting the tab latch toward the front of the machine permits aligning the tab lever extension so the margin control lever cannot get behind the margin stop.

Erratic Tabulation — Model C Decimal Tab Some cases of erratic tabulation may be traced to interference between the interposer cage and the inner plug and cord assembly, or motor leads. This possibility is reduced by positioning the capacitor as far to the right as possible.

Interposer Cage Replacement When replacing an interposer cage in a decimal tab typewriter, be sure to install the interposer assembly mounting screw spacer and the frame mounting bracket. Failure to include these parts will result in tab failure.

Interposer Release Lever Springs Remove the interposer release lever guide and springs can easily be attached.

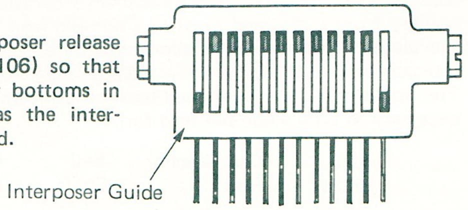
Interposer Remains Up Occasionally an interposer may remain up after contacting a set tab stop. This happens only when the operator holds the keybutton down while the tab is being unlatched. To correct this condition, form the lug on the bail arm for .000" clearance instead of .005"-.010". This allows the restoring bail to contact a greater portion of the interposer link lug.

Interposer Restoring Failures Model D If you experience interposer restoring failures on the Model D Decimal Tab machine, try the following:

1. Replace the restoring bail spring (30-118) with spring (P/N 123491). Model D decimal tab machines above approximate S/N 6272000 have this change.
2. As a preliminary adjustment, form the individual cam operating bail lugs, 1 through 100M, so that all keystems will release the cam at the same time regardless of the amount of the keystem travel.
3. Form the release lug on the tab keylever to release the cam at the same time as the keystems.
4. Adjust the cam release link to allow the cam to be released as late as possible — slightly before the tab keylever bottoms in the guide or just as it bottoms.
5. Adjust the interposer cable assemblies so that each interposer will release .010"-.030" before cam release occurs. If this adjustment is not made correctly, flicking of the keybuttons could cause the cam to be released without selecting an interposer.

NOTE: No adjustment of the cables should be so great as to drastically affect the parallelness of the interposer release levers. If a drastic unparallel condition exists on one or more interposer release levers, a refinement of the respective individual cam release bail lugs will be necessary. (Adjustments No. 2 and 3)

6. Adjust the interposer release lever guide (30-106) so that the release lever bottoms in the guide just as the interposers are released.



Caution: If this adjustment is not correct and the operator holds any tab keybutton depressed, the following symptoms can occur:

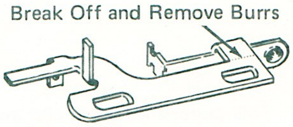
1. Interposers don't release — The interposer release lever guide is too far to the rear of the machine.
2. Interposers don't restore — The interposer release lever guide is too far to the front of the machine, creating choked-off interposers.

This plate is threaded and may be backed off 1/4 turn with gas pliers to open up inside clearances in the assemblies. CAUTION — Do not remove this plate from the assembly as it is difficult to replace.

Repeat Keylevers Sometimes Need Modification — Model C Dec Tab The 2-piece keylever will work only in the 4th row on Model C Dec Tabs. If repeat keylevers are desired in any other row, the lug must be modified on the 1-piece keylever to provide repeat action. **NOTE:** This provides a straight repeat action only — NOT repeat/non-repeat. This applies to all positions except 39 and 41, which may be spring loaded to the tab set bracket.

Tab Check Lever Keeper Replacement — Model C & D Decimal Tab

Purpose: Replaces all previous keepers. New-style solid keeper assembly, includes new-style bell mounting screw and bell.



NOTE: When installing new keeper on early Model C that has the bell mounting on the rear rail, break off the portion shown in the illustration.

Tab Lever Shim — Don't Use On Dec Tab The tab lever shim is not required on the Decimal Tab machine. It will interfere with the tabulation.

Tab Set Finger Hitting Carriage End Cover When the carriage returns beyond the left margin on Model C Dec Tab ET's, the rear of the LH carriage end cover may strike the tab set finger, knocking it out of adjustment. To prevent this condition, position the LH carriage end cover far enough to the left to allow clearance between the cover and set finger when the carriage is all the way to the right. The LH platen knob and detent release lever may also need to be moved to the left to provide sufficient clearance.

Trip Lever Springs — Replacement On Decimal Tab Machines Accessibility to trip lever springs in a decimal tab machine is simplified by removing the C-clip and the cam operating bail fulcrum wire. This will allow you to move the cam operating bail, exposing the trip lever springs.

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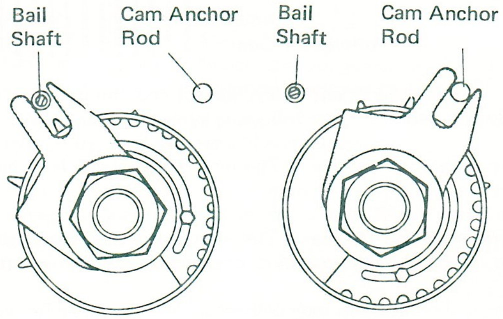
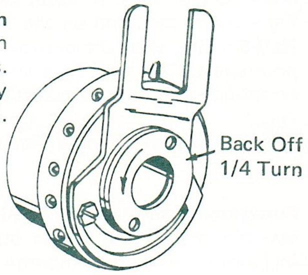
MODEL C & D PIN FEED PLATEN (Mech. 49)

Changing From Non-Pin Feed To Pin Feed Operators using Models A, B, or C pin feed attachments occasionally desire to change quickly from a pin feed form to a non-pin feed form without changing the platen. This may be accomplished by adjusting the pin wheels for full extension in the form when the pin feed yokes are on the bail shaft. The yokes may then be moved back to the cam anchor rod when it is necessary to type a non-pin feed form.



Feed Rolls Fail To Stay Disengaged If the feed rolls fail to stay disengaged on a pin feed platen, add a second feed roll release retainer spring on top of the present. This increases the pressure supplied to the bellcrank.

Pinwheel Binds — Pin Feed Platen Sometimes binds occur in the pins of the pinwheel assemblies. These binds may often be overcome by loosening the inner plate, as illustrated.



This plate is threaded and may be backed off 1/4 turn with gas pliers to open up inside clearances in the assemblies. CAUTION: Do not remove this plate from the assembly as it is difficult to replace.

Plastic Feed Roll Release Bellcrank — Grind When Used On Pin Feed Platen ET's The right-rear corner of the plastic feed roll release bellcrank must be ground off 1/8" to 3/16" when installing the bellcrank on pin feed platen ET's. An unmodified bellcrank will fail to fully restore because it hits the right-hand guide of the form guide.

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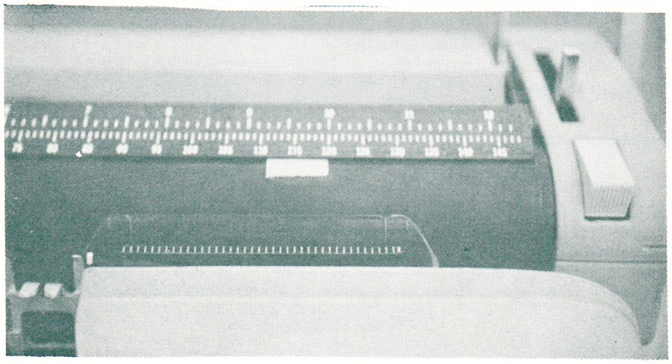
MODEL C & D VISIBLE INDEX PLATEN (Mech. 52)

Visible Index Service Hint On ET's with a visible index attachment, a mark on the platen will save the operator a lot of time when setting up to type cards. The mark is used as a reference point and should be lined up with the front of the top scale before locking the sector gears on the platen. This will ensure the same writing line each time the attached is used.



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MODEL C & D UTILITY INSCRIBER (Mech. 53)

Lining Up Printed Forms — Model C — E13B Here is a suggested procedure to make it easier and faster for the operator to insert preprinted forms. Insert the form and type in exact center of the squares (shift the form left or right to center the character in the square). After typing, adjust the front dust cover so that repositioning indicator wire lines up with the line printed on the form for correction purposes. Install an 8 pitch LH card holder and adjust the card holder lines to the lines on the forms. After these adjustments, the operator can insert a form, roll it up and see immediately if form is positioned correctly by checking if lines are lined up. NOTE: With this modification, the operator will have no way of exactly locating her standard characters. She will have to adjust to their being off approximately 1/2 unit.

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OPEN END CARRIAGE (Mech. 54)

Platen Removal On Open End Carriage The next time you have to remove the platen from an open end carriage machine, try this procedure:

1. Remove platen knobs and bearings.
2. Loosen screw and remove ratchet detent assembly and lower platen variable lever out of way.
3. Loosen set screws and slide the RH platen collar and platen bushing to the right.
4. Remove the four clutch cover screws and take out ratchet driver shaft and assemble.
5. Move the carriage all the way to the right and remove right end of platen toward the front of the machine. It may help to remove the RH card holder.
6. To reinstall, reverse this procedure and adjust position of platen left-to-right.

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GENERAL TYPEBAR & TOOL INFORMATION

Autotypist Link Removal — Service Tip When the autotypist guide comb is removed, the links tend to scatter. If you secure the links with tape at the front and rear prior to removing the guide comb, the links will stay in their correct positions. This may save time as well as being neater.

Chemical Cleaning of ET's When stripping machines prior to washing them in cleaning tubs, consideration should be given to removing parts such as Model C ribbon lift bails which contain sound deadening material. This material may dissolve in the chemical bath.

Cleaning Fluid Sometimes spilled IBM Cleaning Fluid will cause white spots on linoleum or composition desk tops. These spots may be removed by rubbing them with No. 10 oil and then with a dry cloth.

Cleaning Fluid Spout Extension When it is necessary to get cleaning fluid in hard to reach places, the feeder tube from an old cover cleaning bottle makes a good extension. Heat one end of the tube and slip it over the end of the cleaning fluid spout while it is still warm.

Drill Chuck Wrench — Tie To Drill Cord Instead of hunting for your chuck wrench when you need it, tie it to the plug end of your drill cord. This will ensure it stays with the drill. Tying the wrench to the plug end will remind you to unplug the drill (which prevents accidentally turning the drill on) when changing bits.

Hekto Stain — Remove With Plastic Polish IBM plastic polish, P/N 9900177, can be used to remove hekto stains. It requires a liberal amount of polish on a cloth and a brisk rubbing of the stained area.

History Card Clip For Models A, B, C (P/N 1132996) On typebar machines, the Model D has its own history card clip which fits over the right-hand cover spring. For replacement purposes on Models A, B, and C, the same clip that DE uses (P/N 1132996) can be used. On the Model C, it can be installed under the top, left-hand cover hinge screw. Care should be taken to see it does not interfere with the ribbon mechanism. On the Models A and B, the history card clip can be installed under one of the rear bottom plate screws and run parallel to the frame.

Inspection Technique — Customer Satisfaction: Operator satisfaction with the quality of a Service Agreement Inspection can be increased by cleaning the carbon ribbon take-up plates. Accumulated carbon in this area is unsightly and can soil the typist's hands when changing ribbons.

Pin Clevis Adapter Installation In order to save time in putting the pin clevis adapter on the cams when changing the link or the clevis, peen the adapter to the clevis before the link or clevis is put in the machine. This idea can be used to adapt any hole type clevis to a pin type.

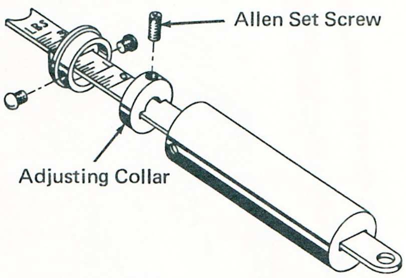
Replacement Parts — Lubrication Prior to installing any replacement part, it is suggested that its pivot points be lubricated. These parts are lubricated when manufactured but the lubricant may deteriorate during prolonged storage. Lubrication at the time of installation will ensure longer life and more reliable operation.

Self-Locking Clevis Breaking: The self-locking clevis can break when opened. To prevent this from happening be sure the clevis is unlocked before trying to spread it apart. This should be done by inserting a screwdriver between the body of the bellcrank and the hole side of the clevis. Twist the screwdriver carefully until the clevis unlocks. Then spread the clevis and remove it from the bellcrank.

Care should be taken during installation of the clevis also. When locking the clevis place the long-nose pliers directly over the pin before applying pressure. If the clevis is squeezed between the pin and the link, it will bend and possibly break when straightened.

Soldering Tiplett Specs Changed Specifications of this soldering tiplett have been changed to provide a longer life tool. In the future, an Iron Clad Nickle Plated tiplett will be supplied. Caution: Plated soldering tips should not be filed. Keep well tinned and wipe clean with a shop towel.

Spring Scale — Zero Calibration Many adjustments made in the field require the use of spring scale, P/N 9900012. Reports indicate that the accuracy of the scale is impaired due to the zero adjustment being incorrect before measurements are made. The zero adjustment can be made by removing two screws that fasten the end cap, and removing the end cap. This exposes an adjustable collar secured by a No. 4 allen screw. The zero adjustment can be made by loosening the allen screw and repositioning the collar on its shaft. The hook may have to be removed from the scale to allow the shaft to move far enough to expose the allen screw; however, the hook should be replaced when checking the zero adjustment. Correct adjustment is checked by holding the scale in the upright position (hook hanging down) and observing that the scale reads exactly 0.



Typing On Bottom Edge Of Page (Last 6 Line Spaces) Having trouble with operators who wish to type on bottom edge of page (last 6 line spaces)? A good correction is to suggest that she try using a legal size sheet of onionskin paper between original and first carbon sheet. The embossing of the original and the added sheet creates an interlocking action of the two. The onionskin sheet remains between feed rolls and platen holding pack very nicely.

Volt-Ohmmeter Face Frosting Some meter faces are being damaged by cleaning fluid coming in contact with the face. This "frosting" effect can be removed ordinarily with IBM plastic polish. In an emergency, you can cover with clear cellophane tape or apply a thin coat of No. 10 oil. Until a face which is not susceptible to cleaning fluid is available, use care to keep the meter away from cleaning fluid.

FRONT PAPER TABLE – MODEL D – SHARP EDGES

A safety hazard may occur after prolonged usage that may produce a sharp edge at the point where the paper table contacts the platen. A material change has corrected this condition on current level production parts.

GENERAL ELECTRIC MOTOR – CAPACITOR TYPE – MOTOR LEADS WORN

Safety Location: Where leads are held in place by nylon wire tie (Figure 1).

Safety Precaution: The possibility of an electrical hazard exists on all General Electric capacitor type motors that have a nylon wire tie around the motor leads where they leave the motor end bell. It is possible that the insulation is worn in the area where the wires contact the end bell under the nylon tie.

Safety Corrective Action: On next service call or before 10-31-76, check all motors in the affected machine serial number range. If nylon tie is present, motor must be replaced. This applies to SA and per call machines.

Caution: Disconnect power from machine before working in the area of the motor.

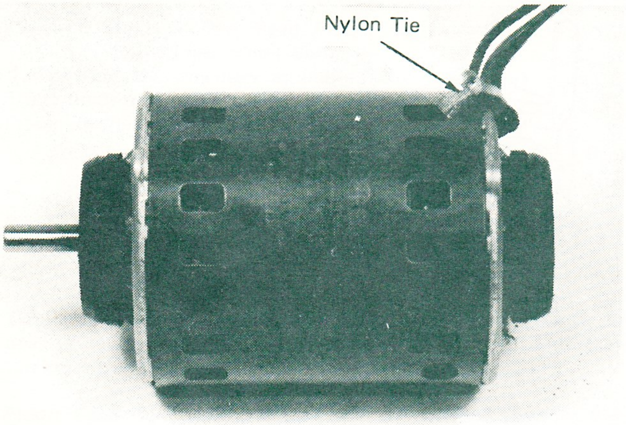


Figure 1

LINECORD CLIPS – MODEL C

Safety Location: Female end of detachable linecord.

Safety Precautions: If the linecord becomes slightly loose, a dangerous fire and/or shock hazard could exist.

Safety Corrective Action: A linecord clip (11-95) must be installed on all machines with a detachable linecord. Clips are available for different rear frame design. See Figures 1 and 2 for proper style clip.

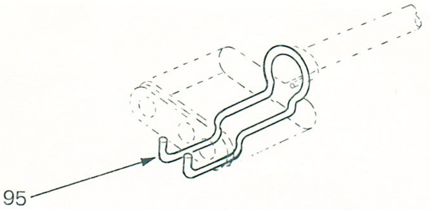


Figure 1

Use On Machines With Stamped Steel Rear Frame

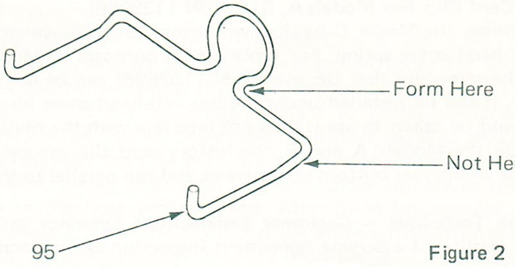


Figure 2

Use On Machines With Die Cast Rear Frame

LINECORD WEAR – C & D DECIMAL TAB

A short area of the linecord contacts the rear frame in the area of the linecord retainer. Vibrations, etc., could cause the linecord to fray or possibly wear through the insulation. Tie the linecord to the linecord retainer using a plastic wire tie.

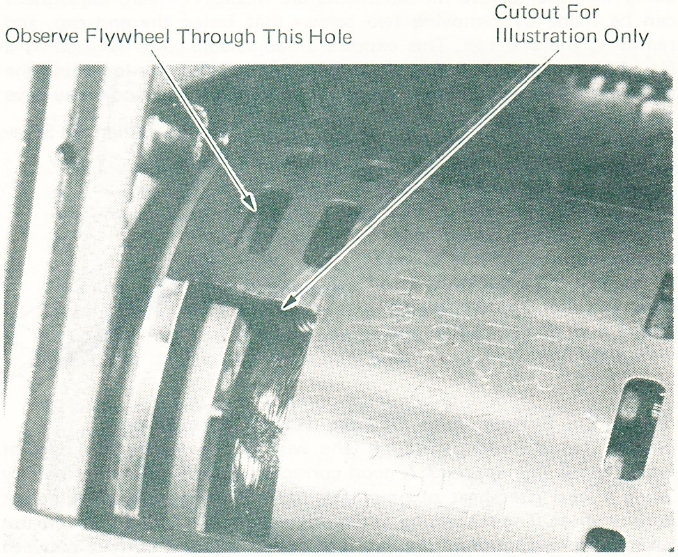
MOTOR – ELECTRICAL HAZARD – MODELS A, B & C

Safety Location: A potential safety hazard exists on all capacitor type, R & M motors with flywheels. These motors have 3 wires protruding from the motor and were used in production, and as replacement parts up to 1966. Some of these flywheels have already been removed due to a noise problem. The flywheels when loose can cause a direct short to the motor housing. A baffle on the inside of the end head on the opposite end of the motor may also be loose. Motors in this category must have the flywheels and loose baffles removed on the next service call or inspection. If necessary, replace the motor.

Shaded pole motors (2 wires extending from the motor) have a fan on the right side. These motors **do not** present a hazard and the fan is **not** to be removed.

Safety Corrective Action: Visually inspect the machine for the following conditions to identify the flywheel type motor:

1. Motor will be capacitor type (3 wires protruding from the motor). **Note:** If capacitor type, UNPLUG MACHINE before continuing. The motor housing may be electrically energized and the single pole switch will not isolate it.
2. Motor will be a R & M manufactured motor.
3. Look for a flywheel on the left armature shaft, Figure 1. **Note:** Some R & M motors were manufactured without flywheels and some flywheels have been removed.


Observe Flywheel Through This Hole
Cutout For Illustration Only

Procedure for removing flywheel:

1. Machine MUST be unplugged.
2. Remove motor, scribe end heads, and disassemble.
3. Pull or tap the flywheel off the armature shaft.
4. Remove any loose baffles.
5. Clean the bearing surfaces and relubricate, reassemble the motor, install new motor mounts, and reinstall the machine.

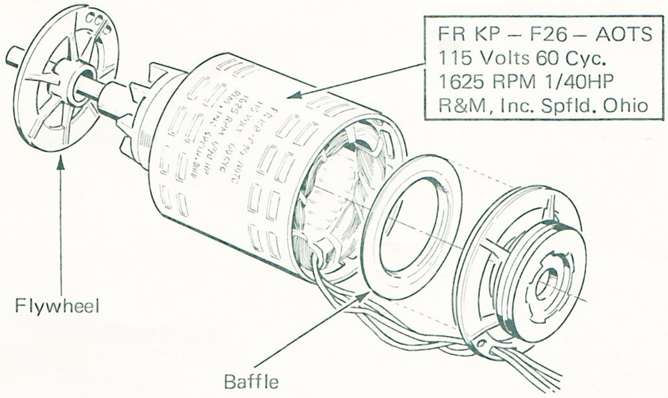


Figure 2

MOTOR GROUNDING SCREW – 3 WIRE MOTOR – POSSIBLE SAFETY HAZARD – MODEL D

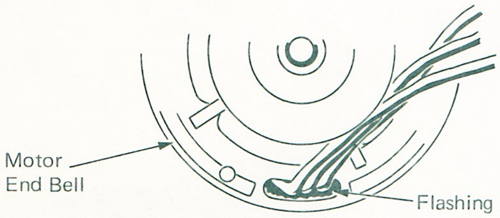
There is a potential safety hazard with the motor ground wire screw. A longer screw was substituted during manufacture of some machines and **MUST** be replaced. Some motors may have been installed so that the tip of this screw can contact the motor winding. Replace the screw with screw, P/N 738378 and washer, P/N 56079.

MOTOR LEADS WORN – CAPACITOR TYPE

Safety Location: Motor end bells where leads enter.

Safety Precaution: A potential shock hazard exits on some capacitor type motors that contain flashing on the end bell. This flashing through vibrations, etc., could wear through the insulation on the leads causing a bare wire to contact the motor housing.

Safety Corrective Action: On the next service call or inspection, examine the motor where the leads enter. If flashing is found, remove it. If the insulation is damaged, replace the motor.



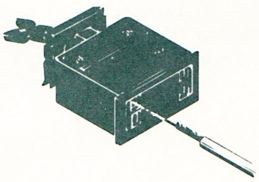
Caution: Unplug the linecord before working in the area of the motor.

POSSIBLE ELECTRICAL HAZARD – MODEL D

Purpose: Care should be taken when unpacking typebar machines. The metal brackets used to secure the carriage during transportation may drop into the typewriter and short the motor housing to the machine frame.

Metal objects on the motor housing and touching the machine frame prevents machine from meeting double insulation standards. A quick visual check of electrical components should be made when inspection or service calls are performed on our equipment.

"QUICK-WIRE" SWITCHES – LOOSE WIRES



Safety Location: Off/on switch. Many switches used on late model "Selectric" and typebar typewriters and other OP equipment incorporate the "quick-wire" connection feature.

Safety Precautions: When experiencing electrical or switch problems, the possibility exists that the wires are not being held firmly in place by this "quick-wire" feature.

Caution: Before checking this connection, remove power by unplugging the machine. Pull on each of the 4 wires – they should remain firmly locked in the switch. If any of the 4 wires are not held firmly, the switch should be replaced.

Note: The remaining wires can be removed by inserting a small "bristo" wrench (or similar tool) into the switch beside the individual wires.

RIBBON TAKE-UP CLUTCH STUD – BREAKAGE

When removing or tightening the fabric ribbon take-up clutch stud (13-308), exercise caution as the slotted end breaks easily.

The wearing of safety glasses and the use of a shop cloth to cover the part is recommended to prevent injury.